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# COMMERCIAL FISHERIES REVIEW



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Washington, D.C.





## COMMERCIAL REVIEW FISHERIES



A REVIEW OF DEVELOPMENTS AND NEWS OF THE FISHERY INDUSTRIES  
PREPARED IN THE BRANCH OF COMMERCIAL FISHERIES

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# COMMERCIAL FISHERIES REVIEW

July 1948

Washington 25, D.C.

Vol. 10, No. 7

## FISHERIES REVIEW--GULF STATES, 1947

By S. C. Denham\*

The fisheries in the Gulf States in 1947 generally experienced fair to good production. In comparison with 1946, landings of shrimp and crabs decreased, but landings of fish and oysters increased. Lower prices, with few exceptions, prevailed during the summer and early fall months than during the winter and spring months. Costs of new construction, repairs, equipment, replacement parts, nets, and other items including labor remained high. Freight and railway express rates increased during the year.



PART OF THE MORGAN CITY SHRIMP FLEET, TIED UP BEFORE THE BLESSING

In spite of high construction costs, a large number of new fishing vessels entered the fisheries. During 1947, according to the U.S. Bureau of Customs, 490 new fishing vessels (5 net tons and over) were documented for the first time in the South Atlantic and Gulf States, as compared with 351 vessels in 1946.

Weather conditions determine, to a major extent, whether fishing craft will operate. During the first quarter of 1947, small craft warnings were hoisted over the major sections of the Gulf Coast on at least 11 different occasions. During the balance of the year, September was the only month in which adverse weather conditions greatly affected fishing operations. The hurricane which moved across Florida into the Gulf of Mexico passed inland east of the Mississippi River during the early hours of September 19. Strong winds, and particularly high water, did material damage to shore installations along the coastal section of Mississippi and in Louisiana east of the Mississippi River, but only a few fishing craft were severely damaged or lost. The Fish and Wildlife Service estimated that damages to fisheries establishments and fishing craft amounted to approximately \$2,000,000 in Mississippi and \$140,000 in Louisiana. A number of oyster beds in Mississippi and Louisiana waters were reported to have been destroyed or badly damaged by the hurricane.

Total shrimp landings, exclusive of shrimp used for drying, were approximately 3 percent less than in 1946 (Table 1) assuming that 5,000 barrels were landed during July, when data on the landings were incomplete.<sup>1/</sup> Landings during

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<sup>1/</sup>Data on landings of various fishery products were obtained daily only from the principal fishing localities on the Gulf Coast, and are not to be considered as being complete for the various States listed in this report. These data serve merely as an index in ascertaining the trend of a (given) fishery. July landings were obtained only for the New Orleans and Lower Mississippi River area due to curtailment of operations because of lack of funds.



the 5-month period August through December 1947 accounted for 73 percent of the total quantity for the year compared with nearly 65 percent of the total for the

Table 1 - Landings by Localities and Areas, Gulf Coast--1947

Locality and Area	Fresh-water Fish	Salt-water Fish	Hard Crabs	Soft Crabs	Oysters		Shrimp		Other Shellfish
	lbs.	lbs.	lbs.	dozs.	For Canning U. S. bu.	Other U. S. bu.	For Canning bbls.	Other bbls.	
<b>FLORIDA:</b>									
Apalachicola	4,210 <sup>1</sup>	197,000 <sup>1</sup>	-	-	-	13,873 <sup>1</sup>	-	5,651 <sup>2</sup>	-
<b>ALABAMA:</b>									
Mobile, Bayou LaBatre	163,190	3,111,190	164,590	-	75,788	60,470	3,411	6,552	-
<b>MISSISSIPPI:</b>									
Biloxi	-	-	229,600	-	726,723	16,430	10,791	28,441	-
<b>LOUISIANA:</b>									
New Orleans and Lower Miss. R. Area	469,800	1,391,740	4,556,240	15,689	154,867	318,174	50,085	38,882	90,130
Golden Meadow	-	-	-	-	180,875	9,584	3,207	20,540	-
Houma, Chauvin & Dulac	-	-	-	-	108,216	89,655	26,936	18,307	-
Morgan City, Berwick & Patterson	1,376,200	97,410	2,552,260	-	-	5,829	-	31,526	7,540
<b>TEXAS:</b>									
Galveston, Freeport & Sabine Pass	-	542,900	-	-	-	-	-	17,324	-
Port Lavaca & Palacios	-	800	-	-	-	-	-	17,950	-
Aransas Pass & Rockport	2,220	131,880	49,840	-	-	20,647	-	15,518	-
Port Isabel <sup>3</sup>	-	172,370	-	-	-	-	-	1,332	-
<b>TOTALS 1947</b> .....	2,015,620	5,645,290	7,552,530	15,689	1,246,469	534,522	100,430	202,023	97,670
<b>TOTALS 1946</b> .....	1,128,865	4,585,990	31,993,500	10,955	725,900	577,810	96,421	221,670	87,460

<sup>1</sup> Data available only for November and December, 1947.

<sup>2</sup> Data for June, July, August and September, 1947 not included.

<sup>3</sup> Does not include data for January through July, 1947.

Notes: For July 1947, data available only for New Orleans & Lower Mississippi River Area.

Capacity of United States oyster bushel equals 2,150.4 cubic inches.

A barrel of shrimp contains 210 lbs. of heads-on shrimp, equivalent to 125 lbs. of heads-off shrimp.

corresponding period in 1946. Total landings in 1947 for the various localities in Alabama, Mississippi, Louisiana, and Texas were approximately 11 percent less than average yearly landings for the years 1942-46, inclusive (Figure 1). The quantities of shrimp reported landed at Apalachicola, Fla., Bayou LaBatre, Ala., and Biloxi, Miss., were appreciably less than in 1946, while Texas landings were only slightly greater. Louisiana landings were slightly more than the previous year. As a result of price disputes between Gulf fishermen and dealers, the cessation of shrimping operations, while not extensive, did occur for short periods during the year.



UNLOADING SHRIMP-MORGAN CITY, LA.

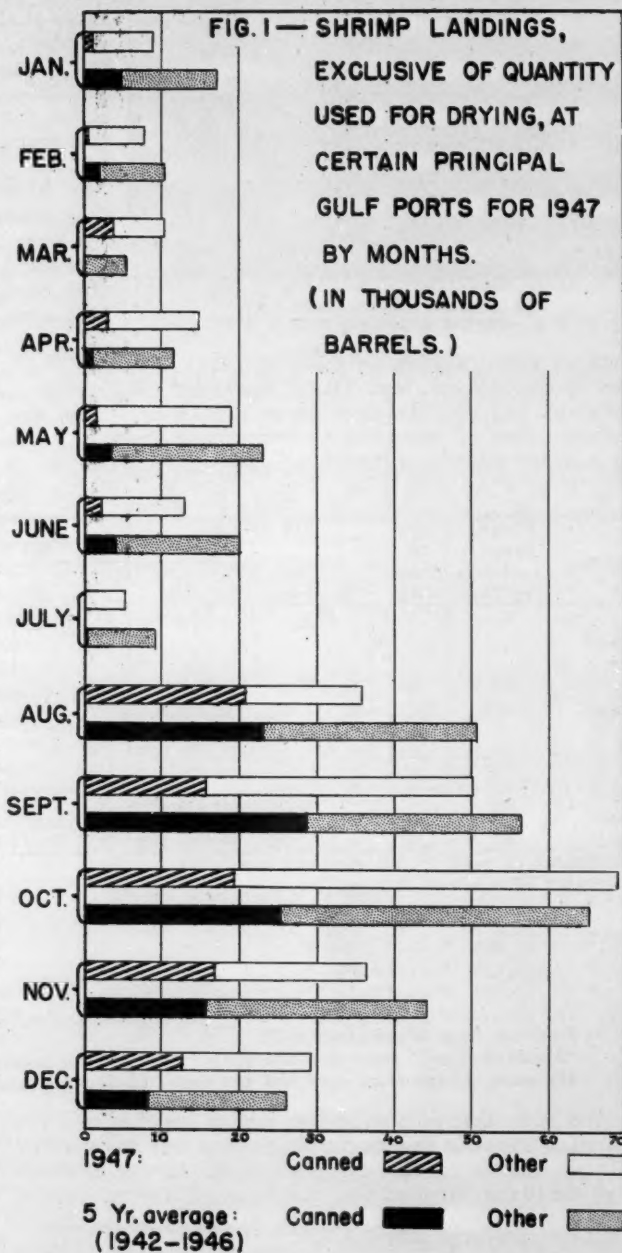
Changes in the fishing regulations of certain Gulf States had an important bearing upon shrimp landings at a number of fishing ports. The Louisiana legislature, in the summer of 1946, revised the closed seasons for commercial shrimping operations. The inside and outside waters of Louisiana were closed for fishing from June 10 to the second Monday in August. Inside waters were closed from December 15 to March 15. As Mississippi adopted the same closed seasons, no shrimp were taken commercially in Mississippi and Louisiana from June 10 to August 11, 1947. Previous to the enactment of the present closed season in Louisiana, only the inside waters were affected by closed season regulations. These applied to commercial shrimp fishing from March 15 to May 16 and from June 25 to August 16. The high non-resident license fee for fishing craft and fishermen sharply limited operation of out-of-State boats in Louisiana waters with the exception of those from Mississippi. The latter State has a reciprocal agreement with Louisiana for operation of Mississippi craft in certain designated Louisiana waters. Previous to the passage of the legislation in 1946, Alabama fishermen enjoyed the right to operate



in Louisiana waters without payment of the non-resident license fee. A number of Louisiana shrimp trawlers operated out of Texas ports during the early months of 1947. This resulted in controversies between the resident and non-resident shrimp producers. The Texas legislature in 1947 enacted additional laws and fees restricting non-resident fishermen and fishing craft.

Shrimp operations in Gulf waters off the Mexican coast by a few United States shrimp trawlers began in 1946. During the year, it became known generally that only craft of Mexican registry operating under a permit from a Mexican co-operative could legally catch shrimp in the waters of the Gulf of Mexico under the jurisdiction of that nation. At least 48 fishing vessels were transferred from U. S. to Mexican registry and the majority operated from Carmen in the Bay of Campeche. As a result of this, an increased quantity of shrimp was imported into the Gulf States from Mexico during the latter part of 1947.

Shrimp continued in good demand throughout 1947, with fluctuations in prices varying with the supply. Generally, wholesale prices were lower during the first part of the year. During the summer and early fall months, prices gradually increased, but declined in October and November and in some instances dropped to the same level prevailing at the beginning of the year. A slight uptrend in prices was noticeable in December. Wholesale prices of shrimp on the New Or-





leans French Market ranged from \$15.00 to \$90.00 a barrel (210 pounds, heads-on) during the first half of the year and from \$27.00 to \$90.00 a barrel during the



NEW ORLEANS' FRENCH MARKET AT  
6:15 P.M.--BEFORE NIGHTLY ACTIVITY STARTS

latter part of 1947 for small to large shrimp. During the year, prices on the wholesale fish market in New York ranged from 60 to 90 cents and in Chicago from 68 to 90 cents a pound for fresh shrimp (25 and less per pound, heads-off).

Nineteen canning plants (one in Alabama, eight in Mississippi, and ten in Louisiana) voluntarily operating under the Seafood Inspection Service of the U. S. Food and Drug Administration from July 1 to December 31, 1947, utilized 9,556,600

pounds of green shrimp in packing 121,332 cases of 48 5-ounce cans, 2,705 cases of 48 5½-ounce cans, and 53,730 cases of 48 7-ounce cans of wet-pack shrimp, or a total of 143,226 standard cases (Table 2). This was much less than the 234,151 standard cases of wet-pack shrimp canned from July 1 to December 31, 1946, by 21 plants under Federal Inspection.

Table 2 - Shrimp Pack

Season	Plants Operated & No. Reporting	Days of Operation	RAW SHRIMP		CANNED SHRIMP			TOTAL
			Received	Packed	Wet Pack		Glass	
					No. 1	Other sizes	All sizes	
			lbs.	lbs.	Std. Cases	Std. Cases	Std. Cases	Std. Cases
1947-48 (July 1 to Jan. 3)	19	694	10,819,009	9,615,894	-	-	-	144,254 <sup>1/</sup>
1946-47	21	1,272	20,337,078	18,454,000	247,836	12,159	-	259,995
1945-46	28	1,296	21,300,000	10,692,100	160,821 <sup>2/</sup>	-	407	161,228
1944-45	39	2,494	39,645,431	27,661,249	409,383	-	702	410,085
1943-44	39	2,616	41,749,075	26,279,469	386,149	-	-	386,149
1942-43	39	2,935	47,581,940	39,315,245	573,959 <sup>3/</sup>	2,457	6,350	582,766
1941-42	39	3,056	53,163,777	46,701,803	635,315 <sup>4/</sup>	43,426 <sup>5/</sup>	6,785	685,526
1940-41	40	2,641	58,589,281	49,546,484	714,782 <sup>6/</sup>	23,652 <sup>7/</sup>	9,419	747,853

1/ Breakdown of pack by can size not available.

2/ Includes 10 cases of dry pack.

3/ " 21,222 cases of dry pack.

4/ " 75,412 " " " "

5/ " 26,885 " " " "

6/ " 106,579 " " " "

7/ " 13,334 " " " "

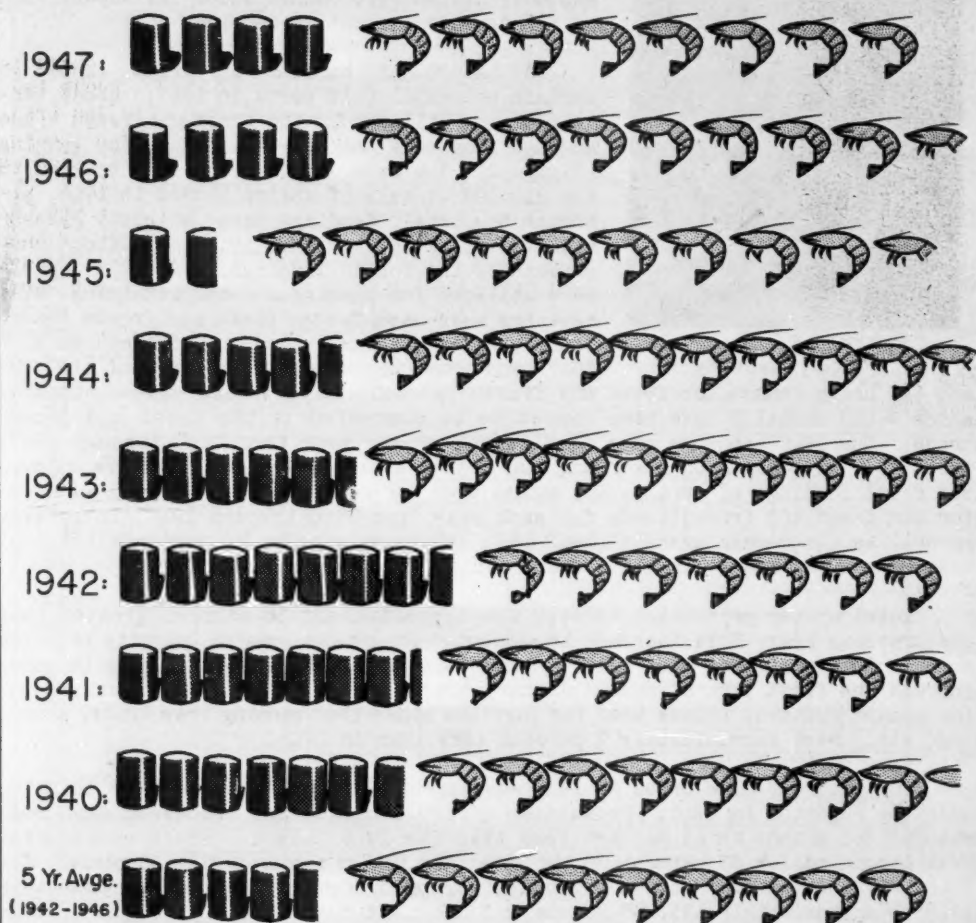
Notes: Includes only packing plants under the Seafood Inspection Service of the U. S. Food and Drug Administration.

"Standard Cases" represent the various size cases converted to the equivalent of: dry pack, 48 6½-ounce cans and wet pack, 48 7-ounce cans per case.

The most active period for shrimp canning was from August 11, the opening of the shrimp fishing season in Louisiana and Mississippi, through December. Only small quantities of shrimp were packed during the other months of the year. Although complete data on the quantity of shrimp packed by all Gulf Coast canning plants are not available at this time, it is estimated, on the basis of reports by plants on the quantities of shrimp used for canning and Food and Drug Administration reports that the pack for the period July 1 to December 31, 1947, amounted to approximately 288,000 standard cases. On the basis of this estimated total



**FIG.2 UTILIZATION OF SHRIMP LANDINGS AT CERTAIN PRINCIPAL GULF PORTS.**



FOR CANNING — 25,000 Bbls. ( 210 lbs. per bbl. )



OTHER THAN CANNING — 25,000 Bbls. (210 lbs. per bbl.)



pack, this would mean that only approximately 50 percent of the total shrimp canned by Gulf Coast plants were packed by plants operating under the Seafood Inspection Service of the Food and Drug Administration for the period July 1 to December 31, 1947. But in 1946, approximately 75 percent of the shrimp canned by Gulf and South Atlantic plants were packed by plants operating under the Federal Seafood Inspection Service. For a number of years prior to 1946, 90 percent or more of the total yearly shrimp pack of the South Atlantic and Gulf States were canned under the supervision of the Seafood Inspection Service.



ONE POUND OF SHRIMP  
(11 TO LB.) HEADS-OFF

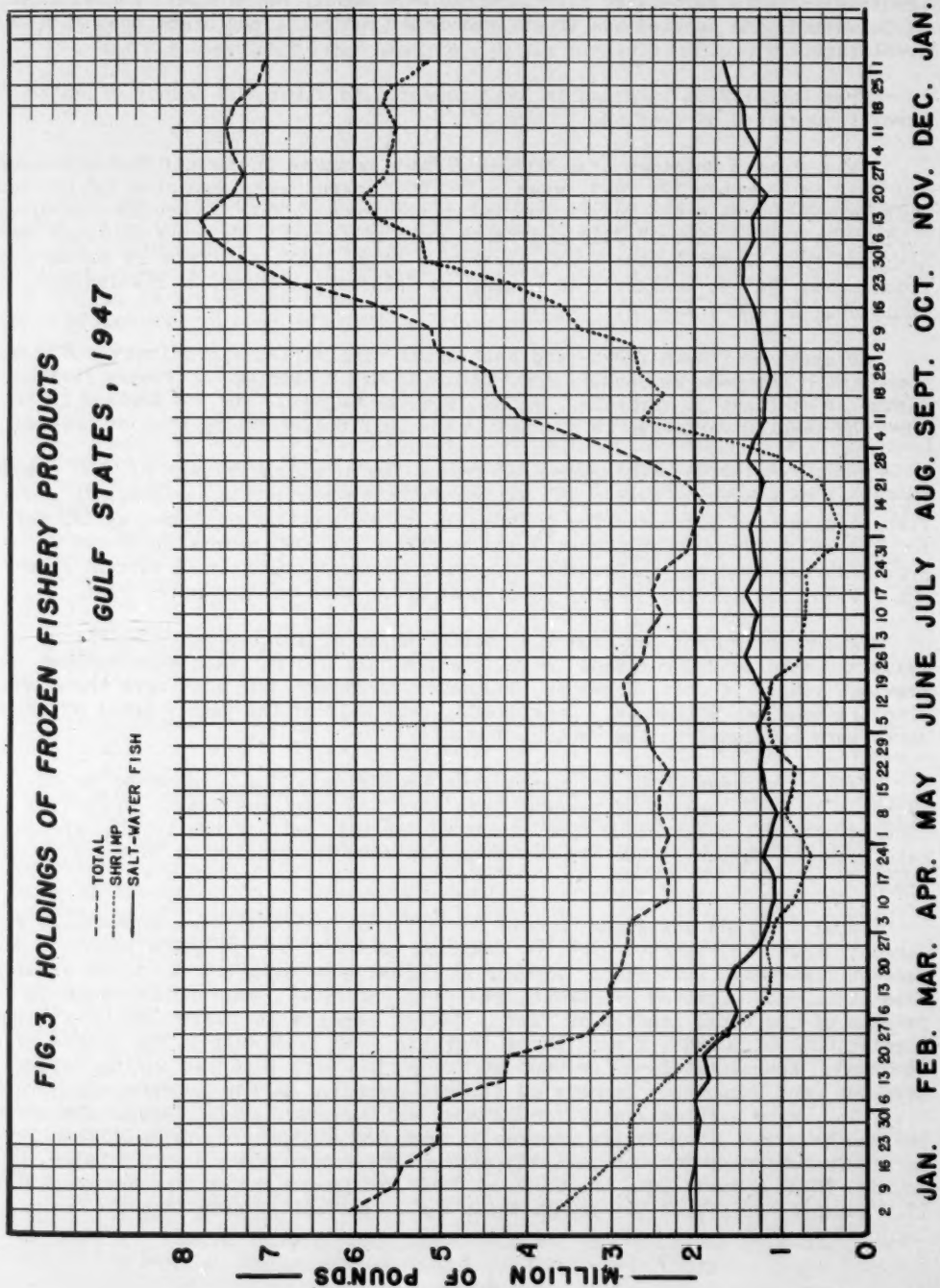
and the heavy demand for fresh and frozen raw and cooked shrimp caused supplies which would normally have been canned to be channeled to the fresh and frozen trade. The 1945 landings were the lowest for any year from 1940 through 1947, inclusive, and also much lower than the 5-year average (1942-46). Figure 2 shows the total landings of shrimp, the amount used for canning, and the amount utilized for the fresh and frozen trade for each year from 1940 through 1947, inclusive, as well as the 5-year average (1942-46). Although canning of shrimp since 1945 has shown an increase, in 1947 it did not reach the prewar level.

Total oyster production in 1947 was approximately 36 percent greater than the previous year. This increase is accounted for by the greater quantity utilized for canning during the past year. Oysters were processed for canning from December through the first part of June. January, March, and April were the peak months for canned oysters. Those used for purposes other than canning (raw trade, shucking, etc.) were approximately 7 percent less than in 1946.

The catch of blue crabs in 1947 was approximately 37 percent less than the quantity reported in 1946. Production of fresh cooked and processed crab meat was 806,362 pounds or 48 percent less than the 1946 output. Fresh cooked crab meat accounted for 83 percent of the total for 1947 as compared with 58 percent for 1946. Production of processed crab meat dropped from around 650,000 pounds in 1946 to approximately 135,000 pounds in 1947. Although crabs are caught the entire year, the bulk of the landings occur during the warm months. A scarcity of crabs existed in Mississippi. High prices demanded by fishermen for hard crabs and the smaller demand for fresh cooked and processed crab meat were important factors affecting and causing the decline in the 1947 production.

Salt-water fish landings were 23 percent greater than in 1946. Red snapper and mullet accounted for 56 percent of the total landings, while spotted sea trout, red drum (redfish), grouper, and black drum together made up 29 percent of the total quantity reported. Red snapper accounted for one-half and mullet approximately one-third of the total salt-water fish landings in Alabama, while in Louisi-







ana, approximately one-half of the landings were spotted sea trout and red drum (redfish). Texas salt-water fish landings were mostly red snapper, landed mainly at Galveston, and spotted sea trout, red drum (redfish), and black drum at other localities.

Fresh-water fish landings in 1947 amounted to 2,016,000 pounds of which 75 percent consisted of catfish.

Cold storage holdings of all frozen fishery products in the Gulf States reached the peak on November 13, 1947, when 7,750,000 pounds were reported by 13 cold storage warehouses. The year's low--slightly over 2,000,000 pounds--occurred during the latter part of July and first part of August. Data on holdings were obtained from 11 warehouses from January to July, 1947, and from 13 warehouses from August 1947 to January 1948 located as follows: Alabama, 2; Mississippi, 1; Louisiana, 6; and Texas, 4.

Holdings of frozen fresh- and salt-water fish varied approximately 800,000 pounds with the peak in January and the low in May. Holdings of frozen fish consisted of at least 30 varieties. Mullet, Spanish mackerel, and New England fillets were the leading varieties in storage in the Gulf States during most of the year.

Frozen shellfish holdings ranged from a low of slightly over 500,000 pounds in August to a high of over 6,250,000 pounds in November. This variation in shellfish holdings was accounted for principally by the quantity of frozen shrimp which totaled 250,000 pounds on August 7 and nearly 6,000,000 pounds on November 13. Frozen shrimp holdings on December 31, 1947, were approximately 43 percent greater and frozen fish holdings nearly 30 percent lower than on January 2, 1947.

Frozen shrimp shipped from the coastal areas of Mississippi, Louisiana, and Texas amounted to 299 carloads in 1947, while only 230 carloads were shipped the previous year. October, November, September, December, and June were the months with the heaviest shipments. Considerably over half of the yearly total of shipments were consigned to the Central States.

Railway express (LCL) shipments from New Orleans, La., amounted to 29,576 packages in 1947, nearly 14 percent less than the previous year. Shipments of shucked oysters, shrimp, and fish accounted for over half of the total. Approximately three-fourths of the express shipments were for localities in the southern States.

Total fish and shellfish imports in 1947 from Mexico through Brownsville and Laredo, Texas, as reported by U. S. Customs, amounted to 3,370,232 pounds, or 2 percent, less than last year. Imports at Brownsville were over 13 times greater than at Laredo. Spotted sea trout, red drum (redfish), and croaker made up 82 percent of the total imports of fish. Shrimp imports at these two localities totaled 804,001 pounds, a very large increase over 1946 when 6,369 pounds were reported. Approximately 87 percent of the shrimp were imported during October, November, and December. Imports of fishery products at New Orleans and Morgan City, La., were available only for November and December, 1947. Imports for these two months were: from Mexico, frozen shrimp, 166,470 pounds; from British Honduras, frozen spiny lobsters, 24,283 pounds, and frozen spiny lobster tails, 975 pounds. Total imports into the U. S. of fresh and frozen shrimp from Mexico during 1947 amounted to 13,228,505 pounds which was 10 percent greater than the quantity imported in 1946.





## TECHNOLOGICAL STUDIES OF THE STARFISH

## PART VI - ECONOMIC CONSIDERATIONS IN THE UTILIZATION OF STARFISH

By Charles F. Lee\*

## INTRODUCTION

Previous papers have discussed the relation of the common starfish (*Asterias forbesi*) to the oyster industry and the phases of starfish utilization which have been investigated by the U.S. Fish and Wildlife Service. The economic considerations involved in any practical utilization of starfish have been mentioned only briefly before. It is the object of this concluding section to investigate this important phase of the general problem of the utilization of starfish in the New England area.

## SUMMARY OF POTENTIAL USES FOR STARFISH

Briefly, the investigations of the Fish and Wildlife Service have been confirmed by several other investigators with respect to the value of starfish meal as a feedstuff. It was found to be a valuable protein supplement in amounts up to 6 percent by weight of growing mash for chicks. In addition, starfish meal satisfactorily supplied both protein and lime in laying mash at a level of 8 percent. Raw starfish as well as meal dried at low temperatures were found to contain thiaminase, the thiamine-destructive enzyme. This added a new phylum of marine organisms to the list of those with members containing thiaminase. Raw starfish used as fertilizer supply about 1.3 percent available nitrogen and 3.5 percent of acid soluble calcium. Treatment with sulfuric acid does not, however, solve any of the problems involved in handling and storing large quantities of raw starfish.

The proximate analysis of starfish does not indicate any other way in which starfish might be used. Starfish oil must be solvent extracted as it averages about 2 percent and rarely exceeds 3 percent of the freshly caught material. The oil has been found to contain a complex mixture of virtually inseparable sterols (see Part II). So far as is known, none of these sterols shows promise as intermediates in the fields of vitamin or hormone chemistry. Only the existence of a high-priced byproduct would justify the costly solvent extraction of the small amount of oil available. Thorough investigation of the protein of starfish offers some promise of discovery of a product of high value. The protein is readily broken down and might prove to be a source of certain amino acids which have recently been in considerable demand for clinical studies and nutrition research.

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NOTE: Part I of this series, "Starfish Control--Its Economic Necessity and Methods Used," appeared in the January 1948 issue of Commercial Fisheries Review, pp. 1-6. Also available as Sep. No. 193.

Part II, "Chemical Composition," appeared in the February 1948 issue, pp. 11-18. Also available as Sep. No. 196.

Part III, "Value of Starfish Meal--Protein Supplement for Growth of Rats and Chicks and for Egg Production," appeared in the March 1948 issue, pp. 8-19. Also available as Sep. No. 199.

Part IV, "Thiaminase in Starfish," appeared in the May 1948 issue, pp. 12-19. Also available as Sep. No. 204.

Part V, "Starfish as Fertilizer," appeared in the June 1948 issue, pp. 11-16. Also available as Sep. No. 206.



## ECONOMIC FACTORS RELATING TO USE OF STARFISH FOR PROTEIN MEALS

Special handling of starfish in any quantity, large or small, would be justified if the material were to be used in preparation of amino acids or vitamin and hormone intermediates. However, at present, the only proven value of starfish



STARFISHING VESSEL

is as a source of protein in poultry feed or in fertilizer. For these purposes, it is in direct competition with the other protein byproducts. Some of these are crab scrap meal, shrimp and lobster bran, and the "white fish" meal produced from New England groundfish fillet scrap. In fact, since starfish meal is merely a potential source of protein dependent on economic factors, other potential sources might be used under certain circumstances. Of these might be mentioned the enormous quantities of trash fish discarded by the North Atlantic trawl fisheries, as well as the smaller, but sizable, quantity

of trash fish taken, but not utilized, by the shrimp trawlers in the South Atlantic and Gulf.

For this reason, the creation of an industry based on the use of starfish as a raw material for the production of protein meals is dependent upon a number of factors, each directly affecting its economic feasibility. To be considered are:

1. The amount of starfish available from present control efforts of the oyster industry, and costs thereof.
2. The regularity of supply from month to month and over a period of years.
3. The possible quantity of starfish to be obtained from a separate fishery and costs of such operations.
4. The cost of production, transportation and marketing of starfish meal.

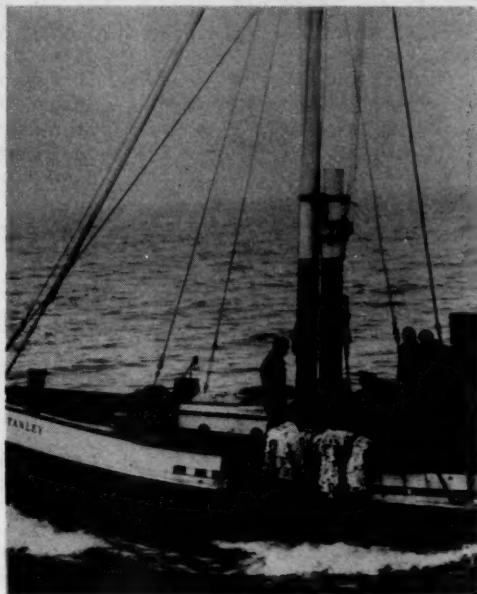
It is virtually impossible to obtain data on the catch of starfish, cost of control operations, fluctuations in the number of starfish and other pertinent information (Galtsoff and Loosanoff, 1939 and Burkenroad, 1946). Starfish are regarded by oystermen as a necessary evil to be kept at the lowest level consonant with a reasonable expenditure of money and effort. Operating costs of vessels used for starfish control vary widely with the type and size of vessel used and the method of control. In 1947, these were estimated to be \$35 to \$50 per day at a minimum, while costs may exceed \$150 per day per vessel when the large oyster dredge boats are transferred to cleaning grounds of starfish.

The amount of starfish taken by these control efforts is even harder to estimate. Generally, the starfish have not been brought to shore so that a quantitative estimate is not possible. The starfish are landed on deck only when the mops are hand-picked or during the uncommon occasions when starfish are dredged. Catch estimates of starfish taken by the mops which are dipped in hot water are, at best, rough estimates. The material taken by dredge may consist of more crabs, conchs, oysters, shells, and rocks, than of starfish. If the amount of starfish exterminated



is not known, at least it is generally agreed that the quantities of starfish encountered show large variations from year to year and even from month to month (Sweet, 1946). At certain times, every available craft is working at starfish control, while during similar periods in other years so few starfish may be found that the only operations necessary are periodic surveys to detect any sudden increase in population which can then be checked before serious damage is done.

Unpublished work of Loosanoff suggests that the abundance of starfish for a given season can be predicted with some degree of accuracy from a study of larval forms in plankton samples taken in the preceding months. However, very little is known of the causative factors in the fluctuation in abundance of starfish. The opinion has been prevalent both among growers of seed oysters and the State agencies of Rhode Island and Massachusetts that the starfish population can be materially reduced for some years by intensive control efforts during periods of heavy infestations. This theory has been the basis for the limited appropriations which have been made several times in recent years paying a bounty on starfish caught, (Barnes, 1946 and Gibbs, 1941 and 1946).



CLEANING MOPS ON STARFISHING VESSEL

On the other hand, the trend in recent years has been for biologists to attribute more and more weight to the effects of ecological factors on the size of populations. Many of these factors are still unidentified. The effect of human factors, such as, hunting, sport fishing, extensive commercial fishing, trapping, and even bounty payments for predators are often believed to be secondary in importance in their effect on future abundance.

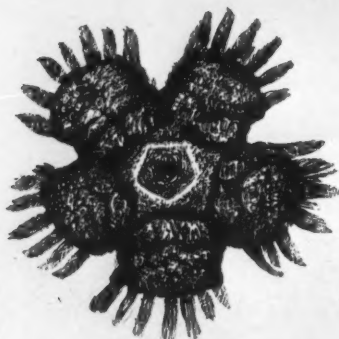
Some of the species, the abundance of which is held to be greatly affected by these ecological factors, are certain of the game birds and smaller game animals, fresh-water game fish, and marine species of fish and shellfish, such as, the blue crab, haddock, mackerel, menhaden, and pilchard. This does not imply that too heavy hunting or fishing cannot significantly reduce a population, but in normal years, it has been estimated that, for some of the marine species with a short life cycle, a capture of as much as 80 percent of the population will not materially affect future abundance. Conversely, disease, drought, abnormal rainfall, and similar uncontrollable conditions may dramatically reduce a population, for many years in some cases. The well-known mystery of the disappearance of smelt in the Great Lakes is an illustration.

It is not too surprising, therefore, that Burkenroad (1946) found evidence of a large annual variation in his extensive, though hardly quantitative, survey of starfish abundance. In the course of fluctuations of a seemingly cyclic character, he estimated a decrease in the population of the order of one-twentieth of



that found at the maximum. The nature of the information on which these conclusions were based does not permit quantitative comparison of the population density at the several maxima.

It was suggested, though also not subject to proof, that the fluctuations in starfish abundance coincided throughout the whole New England area. Since control efforts have been carried on by the oystermen throughout the period studied, it is of course impossible to separate their influence from that of natural factors. This is emphasized by the fact that most of the information comes from sources directly influenced by the reports of oystermen on starfish abundance, namely, trade journals and newspapers.



STARFISH ABOUT 1 MONTH OLD

Actually, for present purposes, it does not matter whether the fluctuation is man-made or from natural causes. The critical fact is that enormous variations in abundance do occur. One company encountered a range from 5 to 650 tons per year in its estimated catch of starfish. The supply of raw material from a fishery of this type does not permit the economical operation of a meal drying plant.

A rough estimate of the cost of starfish taken by the seed oyster companies may be made based on average costs of \$50 per day to operate a vessel taking 8 bushels of starfish weighing approximately 500 pounds. A ton of raw starfish would cost \$200, which is equivalent to a cost of \$1,000 for raw material to produce a ton of meal. This figure probably would be at least doubled if the starfish were hand-picked. The drying plant, on the other hand, could not pay more than \$3 to \$4 per ton for raw material.

The establishment of a separate fishery for starfish comes somewhat nearer to the border of economic feasibility. A bounty was paid on starfish landed in Massachusetts from 1932 to 1936 (Barnes, 1946) and in Rhode Island in 1941 (Gibbs, 1941 and 1946). There was also one commercial plant at Mobjack Bay, Va., which made starfish meal for a short period in 1935-36 when starfish invaded the lower Chesapeake Bay. From these sources, an estimate of the cost of a separate fishery for starfish may be made. The starfish dredged from Chesapeake Bay were estimated by Burkenroad to have cost the Virginia meal plant from \$2.50 to \$4.00 per ton. Bounty payments have ranged from \$10.00 to \$15.00 per ton, the price being increased as the abundance of starfish decreased. Bounty payments were limited to starfish taken from small skiffs with hand dredges. With an organized fishery using much larger, powered fishing craft, costs could undoubtedly be reduced below these figures. However, with the high operating costs of the postwar period, it would be difficult even in periods of maximum abundance to land starfish at a drying plant for as little as \$5.00 per ton. Over a period of years, the previously discussed uncertainty of supply would make the average cost of raw starfish several times this figure, or a far greater cost per ton of dry meal than its retail value.

#### MEAL PRODUCTION COSTS

A suggestion of possible merit would be the construction of a meal plant designed for processing starfish during periods of maximum abundance with the use



of other raw materials, such as trash fish during periods when starfish are relatively scarce. The existence of such a standby source of unused raw material would have to be assured. The relatively small size of the Connecticut trawl and trap fishery up to 1947 has not offered the assurance of a reliable supply of trash fish.

With raw material costs inevitably high, transportation costs would of necessity have to be kept at a minimum. The drying plant would have to be located at the point of maximum starfish concentration. A floating dehydration plant would solve the problem of accessibility to a shifting and uncertain source of raw material. To operate efficiently, this type of plant would need a small fleet of "buy" boats to collect the starfish. Since operations of this type have not been carried out on the East Coast, cost estimates are difficult to make. It is certain that costs would be very high unless a supply of raw material of many times the quantity of starfish now available in 1947 were definitely assured.



DISTRIBUTION OF STARFISH IN CHESAPEAKE BAY IN MARCH 1937

The cost of drying, grinding, packing, and selling of starfish meal would be equal to or greater than similar costs of other byproduct meal. Personal observation, as well as the limited experiences of the Rhode Island Oyster Company in producing a trial lot of starfish meal, suggest that the tendency of raw starfish to mat together will lead to difficulties in maintaining an even feed to the driers. Special handling would be required to eliminate this difficulty, and grinding the dry meal might also present difficulties. The starfish skin is both tough and abrasive, and has a tendency to flake into sheets rather than to break into a uniform particle size. Reduction of moisture content below 3 percent would facilitate grinding but would add considerably to drying costs.

The most efficient type of drier operating continually at optimum capacity would add \$19.00 to \$20.00 to the cost of a ton of starfish meal. Total production costs were estimated by Burkenroad to total about \$42.00 per ton for a steam dried meal. This value is, however, based on a regular year around supply of raw material to yield an annual production of 5,000 tons. This would mean 25,000 tons (50 million pounds) of raw material would be required and as indicated above there seems to be no possibility that the supply of starfish could regularly meet more than a small fraction of this total demand for raw material.



## CONCLUSIONS

1. The production of starfish meal is not practicable for the following reasons:
  - A. Control methods practiced by the oyster industry do not offer a reliable source of raw material.
  - B. A separate fishery for starfish could not operate at present to yield raw material at a cost consistent with its value as a feedstuff or fertilizer.
  - C. Extreme annual fluctuations in the abundance of starfish creates a very poor source of supply of raw material for a meal drying industry, regardless of the cost of raw material.
  - D. There are no byproducts, such as oil, which might carry part of the production costs. The costs would be as high or higher than for any other byproduct meal.
  - E. Starfish meal has a low nitrogen content and high ash content and therefore is a relatively low priced product.
2. Control operations now practiced by individual oyster companies appear to be the best means for combating the menace of starfish to the oyster industry.
  - A. Reduction of starfish population by bounty payment is only temporary. It appears probable that abundance will normally decline from maximum through natural causes within one or two years.
  - B. Further biological research is needed to prove the existence of an abundance cycle, and to study larval forms of plankton samples in order to predict the abundance of starfish in the immediate future. Reliable information of this nature should enable more efficient and intelligent planning and utilization of present control equipment by the oyster companies.
3. Future technological research on starfish should be directed to the development of high-priced preparations from starfish.
  - A. The utilization of starfish for feed or fertilizer has been sufficiently explored to show that it is theoretically possible but not economically feasible.
  - B. At the present time, it would appear that development of methods for the separation of the amino acids of the protein of starfish might produce products of sufficiently high price to encourage the establishment of a separate fishery.

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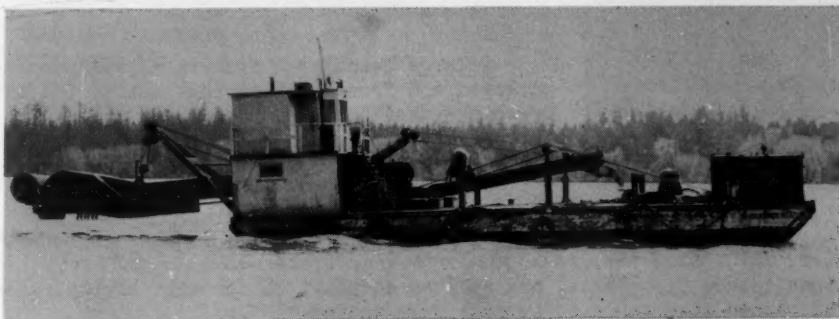
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### PLANTING AND MARKETING OYSTERS IN THE PACIFIC NORTHWEST

Owing to the scarcity of help, dredging for oysters has largely taken the place of picking and tonging. Dredgers may be self-powered or towed behind another boat. They may be operated from one side only, or from both sides, or from the stern. If more than one drag is to be fished, a separate hoist is used for each drag so that one may be pulled in while the other is fishing. Some dredgers are merely boats with a long foredeck where the oysters are piled as dredged; others are power scows with side boards. As the latter have a more shallow draft they hold larger loads and may fish longer over the beds without going aground.



PACIFIC COAST OYSTER DREDGE

Oysters are delivered to the opening house from the dredges by means of a chain elevator or a bucket hoist. In some houses the oysters pass through a rotating cylindrical washing-screen which removes all sand and grit, and passes the oysters to the storage bins. These bins are built above the concrete-surfaced opening tables and are tapered toward the bottom. The oysters fall through the narrow opening at the bottom onto the opening table and, as the oysters are removed by the opener, the supply is continually renewed.

--Fishery Leaflet 52

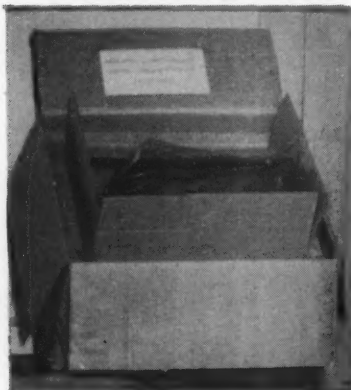




MAY 1948

College Park, Md.

An experimental shipment of two 10-pound cartons of frozen fillets packed with dry ice in an insulated corrugated paperboard shipping container was made from College Park to New Orleans by railway express. A return shipment was also received. The fillets arrived in excellent condition in both instances.



INSULATED LIGHT-WEIGHT SHIPPING  
CONTAINER FOR AIR TRANSPORT

\* \* \*

The vitamin D (AOAC assay) content of a sample of Bering Sea cod liver oil was found to be about 200 U.S.P. units per gram.

\* \* \*

A large quantity of fish salad was prepared, packaged and frozen, for storage tests. The salad dressings used had been specially formulated to be incorporated in frozen salads.

\* \* \*

Palatability tests were conducted using recipes for New England and Manhattan clam chowder, shad, shad roe, scallops, oysters, frozen lobster tails, pollock salad, salmon salad, fish cakes, and seafood cocktail sauces with shrimp. Also, ten lots of canned fish sandwich spreads were tested.

Beaufort, N. C.

An increase in the U. S. Coast and Geodetic Survey appropriation for the next fiscal year will enable a more extensive survey, proposed cooperatively with the U. S. Fish and Wildlife Service, to be made of submerged obstructions and wrecks off the Virginia and North Carolina coasts. Serious losses to fishing gear through contact with these obstructions have been reported.

Boston, Mass.

The observer and consultant detailed to the Deep Sea in Alaskan waters returned to Boston with a report that an improvement was made in the construction



of the cod end of the trawl during the trip. The new cod end, made up in two halves, with a stretched mesh size of 10 inches, is constructed of rope and hog rings and differs in construction from the conventional type in that the ropes are laid cross-diagonally instead of vertically, and the stresses of weight are upon the bars which cross from the point of tension to the side lacing with no apparent undue stress on the hog ring fastenings. The belly section was also re-designed to make the net more adaptable for king crab fishing.

\* \* \*

Eighty samples of water and clams from 16 sampling stations on the Phippsburg and Georgetown sides of the Kennebec River were examined bacteriologically. Clam samples as well as water samples, collected at high and low tides, were obtained from the Parker River and Ipswich areas to ascertain the extent of pollution.

\* \* \*

The Quartermaster Food and Container Institute, Chicago, Ill., has reported that the meat products smoked in the electrostatic fish smoking device at Eastport, Me., absorbed a fair smoked flavor, although the desired smoked appearance usual in products of this type was absent.

### Ketchikan, Alaska

The study of methods to produce commercial and vitamin oils from salmon waste has been completed and a preliminary report written. Results indicate that the recovery of oil and its vitamin content are not greatly affected by pre-grinding the material or by the processing temperature. Too little or too much alkali used during the processing results in poor recovery of oil. Effective oil recovery from whole salmon cannery trimmings resulted from the use of  $1\frac{1}{2}$  parts of sodium hydroxide per 100 parts of waste. With some exceptions, the samples of oil tested between 800 and 1,370 units of vitamin A per gram.

\* \* \*

Feeding tests with frozen and processed ground salmon cannery trimmings at an experimental mink farm indicate that both are quite satisfactory as compared with standard mink diets. There was no significant difference in the number of kits born per female on the various diets.

### Seattle, Wash.

After 34 weeks of storage at 0° F., refrozen fillets which had been prepared from frozen whole fish after 11 weeks preliminary storage were rated edible and of fair quality.

\* \* \*

After 22 weeks of storage at 0° F., brown rockfish fillets were inedible because of a strong rancid flavor in the fat layer. Red rockfish fillets frozen for the same period were slightly rancid but were rated entirely edible. Fillets from both species of rockfish in which the fat layer had been removed by a skinning



machine before packaging and freezing were superior in appearance and flavor to the regular fillets.

\* \* \*

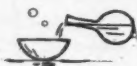
The Service observer and consultant aboard the experimental purse seiner Alaska, while waiting in Honolulu for damage to the vessel to be repaired, is studying the methods used by the several types of fishing craft operating in the local Hawaiian fishery.

\* \* \*

The Pacific Explorer's Service observer and consultant reports from the Bering Sea that results of the initial king crab fishing in Pavlof Bay area indicate a stock of sufficient volume should exist for exploration by several small fishing vessels. King crabs in the Bering Sea were found to be widely distributed at 40 fathoms and less along the north side of the Alaska Peninsula but the greatest concentration of fish were found at depths of 40 fathoms and over. Since the majority of the crabs do not have a well developed red membrane surrounding the leg meat at this season, the meat tends to break up unduly during the shaking process to detract somewhat from the appearance of the pack. However, the amount of meat in the crabs is increasing and the strength of the membrane is expected to improve. The moulting season of the female crabs and the consequent mating season is later this year than in 1941 which might be attributable to the later vanishing of the ice pack.

\* \* \*

Continuing the study on Pribilof fur seal livers for both oil content and vitamin A concentration in the oil, analyses of 200 individual seal livers, mostly three-year-old bachelors, taken during the regular killing season, show the average oil content to be about 3 percent. One liver had an exceptionally high oil content of 14 percent. The vitamin A concentration was greatly variable, ranging from a low of 1,000 to a high of 200,000 spectrophotometric units of vitamin A per gram of oil, with an exception in one liver being noted, assaying at nearly 600,000 units.



### CRAB MEAT SALAD

To 3 cups of cooked crab meat, add  $\frac{1}{2}$  cup of salad oil and an equal quantity of vinegar seasoned with onion, tabasco sauce, and salt. Let the crab meat stand in this seasoned dressing for several hours, then drain and combine it with 2 cups of cut celery and with enough thick salad dressing to coat all the pieces. Pile the salad on crisp lettuce and serve. Lobster or fish flakes may be used in these same proportions.

--Fishery Leaflet 106.





# TRENDS AND DEVELOPMENTS

## Additions to the Fleet of U. S. Fishing Vessels

One hundred and thirty-four vessels of 5 net tons and over received their first documents as fishing craft during May 1948, twelve more than in the previous month, but eighteen less than were documented in May 1947, according to the Bureau of Customs of the Treasury Department. A total of 427 vessels received their first documents as fishing craft during the first 5 months of 1948, compared with 510 in the first 5 months of 1947. Twenty-one of the vessels documented during May were registered at State of Washington ports, Louisiana followed with eighteen, California and Alaska with fourteen each, and North Carolina with thirteen.

Vessels Obtaining Their First Documents as Fishing Craft

Section	May		Five mos. ending with May		Total
	1948 Number	1947 <sup>1/</sup> Number	1948 Number	1947 <sup>1/</sup> Number	1947 <sup>1/</sup> Number
New England .....	10	4	20	18	75
Middle Atlantic .....	5	12	18	31	70
Chesapeake Bay .....	3	5	14	22	97
South Atlantic and Gulf .....	57	35	180	170	490
Pacific Coast .....	39	61	130	169	411
Great Lakes .....	4	6	18	15	74
Alaska .....	14	27	42	74	47
Hawaii .....	2	2	5	11	23
Unknown .....	-	-	-	-	12
Total .....	134	152	427	510	1,299

<sup>1/</sup> Revised.

Note: Vessels documented by the Bureau of Customs are craft of 5 net tons and over.

## Canadian Halibut Vessels to Land in Alaskan Ports

The President on June 19, 1948, signed the bill H. R. 6110 (P. L. 718) which authorizes Canadian vessels to land halibut in Alaskan ports. United States Collectors of Customs in Alaskan ports of entry were instructed by the Treasury Department to permit Canadian halibut vessel to land halibut and sablefish beginning July 1, 1948. The full text of the law follows:

Public Law 718 -- 80th Congress  
Chapter 549 -- 2nd Session  
H. R. 6110

An Act

To permit the landing of halibut by Canadian fishing vessels to Alaskan ports, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That notwithstanding the provisions of section 4311 of the Revised Statutes (46 U.S.C.



251), Canadian fishing vessels engaged in the North Pacific halibut fishery only shall be permitted to land their catches of halibut and sable fish (black cod) in ports of entry in Alaska, upon compliance with applicable customs laws, during any period prior to January 1, 1950, in which the Secretary of State finds and so notifies the Secretary of the Treasury that United States fishing vessels engaged in the North Pacific halibut fishery only are granted comparable privileges in ports of British Columbia.

Approved June 19, 1948.

## Federal Purchases of Fishery Products

DEPARTMENT OF AGRICULTURE, June 1948: No purchases of fish were reported by the Department of Agriculture during June 1948 nor were any reported in June 1947.

\* \* \* \* \*

DEPARTMENT OF THE ARMY, May 1948: Purchases of fresh and frozen fishery products by the Army's Quartermaster Corps during May 1948 for the U.S. Army, Navy, and Marine Corps amounted to 1,261,261 pounds valued at \$429,774.

## FAO Standing Advisory Committee on Fisheries

The Standing Advisory Committee on Fisheries for the Food and Agriculture Organization (FAO), met in Washington on June 1 at the request of the Acting Director-General. The Committee is made up of ten technical fishery representatives, chosen by the Director-General to advise him on FAO fishery programs. They do not represent countries, but are named because of their knowledge and background in fishery matters. Nine of the ten members were present in Washington.

The Committee reviewed the work of the Fisheries Division and drew up recommendations for expanded divisional activity. The greatest attention was given to the most effective use of the limited funds available in operating a program aimed at increasing fish supplies.

On June 3, the Committee completed its report and presented it to the new Director-General, Norris E. Dodd, former Under Secretary of the U. S. Department of Agriculture.

The Committee is made up of the following:

Dr. D. J. van Dijk  
Chairman and Director  
Marketing Board on Fisheries Products  
Ministry of Agric., Fisheries & Food  
20 Wassenaarscheweg  
The Hague, Netherlands

Mr. Ray Gushue  
Chairman  
Newfoundland Fisheries Board  
St. John's, Newfoundland

Mr. A. W. Anderson  
Chief, Branch of Commercial Fisheries  
Fish and Wildlife Service  
U. S. Dept. of the Interior  
Washington 25, D. C.

Mr. B. Dineson  
Ministry of Fisheries  
16 Borgergade  
Copenhagen, Denmark

Mr. P. D. H. Dunn  
Fisheries Secretary  
Ministry of Agriculture and Fisheries  
St. Stephen's House, Victoria Embankment  
London, England

Dr. A. W. H. Needler  
Asst. Deputy Minister  
Department of Fisheries  
Ottawa, Canada



Mr. O. Brynjelsen  
Director of Fisheries  
Fiskeridirektoratet  
Bergen, Norway

Dr. Bains Prashad  
Fisheries Development Adviser to the  
Government of India  
New Delhi, India

Dr. C. von Bonde\*  
Director of Fisheries  
Beach Road, Sea Point  
Capetown, Union of South Africa

The Hon. Thor Thors  
Minister of Iceland  
Legation of Iceland  
Washington, D. C.

\*Not present at Washington meeting



### Large-mesh Net Tested by "Albatross III"

Preliminary studies of the escapement of small fish through a large-mesh cod end were made by the U. S. Fish and Wildlife Service vessel, Albatross III. The vessel, on her third cruise, sailed on June 7 to Eastern Georges Bank and returned on June 11 to Woods Hole; Mass.

These studies, begun in the early 1930's, are an attempt to develop a method for allowing fish smaller than commercial sizes to escape. The nets used at present destroy large quantities of young fish. Mr. W. C. Herrington, former Chief of the North Atlantic Fishery Investigations, has shown that the use of a cod end with 4-5/8-inch mesh, stretched measure, would allow most of these small fish to escape. Mr. H. A. Schuck, biologist at the Woods Hole laboratory, estimates that during 1947 almost 17,000,000 baby haddock, too small to market, were discarded dead on Georges Bank alone. If these fish were left on the Bank until 1948, the industry could harvest at least an additional 30,400,000 pounds. At current prices, this poundage would bring the industry approximately an additional \$3,000,000.

One of the principal uncertainties about the use of the large-mesh nets is: Do the fish escape alive? The present series of experiments aboard the Albatross III is an attempt to obtain an answer. During Cruise 3, tows were made with a 1-1/2 Iceland net fitted with a 4-5/8-inch mesh cod end covered with a fine mesh cover. Large haddock were caught in the cod end and the small haddock went through the meshes to be caught by the cover. Both the haddock which were held in the cod end and those which escaped through it were tagged. Sixty haddock and two cod were tagged with a red and white celluloid disc attached by a pin to the gill cover. Rewards will be paid for the return of these tags to the Fish and Wildlife Service.

Rough weather made it impossible to handle the haddock gently when bringing the catch on deck. The fish were bruised and partly scaled. Therefore, it is planned to repeat the tagging on the next cruise.

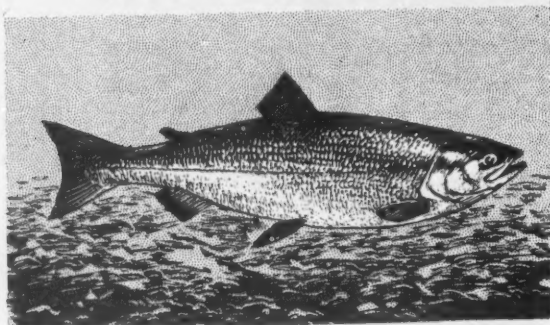


### Pacific Sockeye Salmon Regulations for 1948

The International Pacific Salmon Fisheries Commission, on March 31, 1948, announced the 1948 sockeye salmon fishing regulations for the convention waters



of the United States and Canada, promulgated at the Commission meeting held in Seattle on March 31.



SOCKEYE SALMON

The Commission stated that: "The regulations were promulgated in an effort to build up this particular cycle of sockeye by providing ample escapement into the Fraser River watershed. Information based on previous cycles led the Commission to believe that this year's run would not be large, and the 1948 regulations are designed to enlarge its future cycle.

"Regulations set for U. S. convention waters are outlined as follows:

Opening date .....	July 18, 1:00 a.m.
Temporary closing date .....	August 13, 6:00 p.m.
Second closing date .....	September 1, 6:00 a.m.
Final closing date .....	November 10, midnight, regular salmon season closure outside the Initiative 77 line, and November 20, midnight, inside Initiative 77 line.
Gear restrictions: .....	Gill nets of less than 6½ inches stretch measure mesh, unlawful on and after September 1, 6:00 a.m. Gill nets of 8 inches stretch mesh and over may operate during regular salmon season, provided that sockeye entangled therein are to be released unharmed immediately, if taken during sockeye closure. Purse seines unlawful to operate prior to July 18, 1:00 a.m., for all species in all waters.
Weekly closed period .....	36 hours, concurrent with regular salmon fishing weekly closed periods.
Unlawful possession of sockeye..	All periods closed to sockeye fishery in all convention waters.

"Regulations set for Canadian convention waters are outlined as follows:

Opening date .....	Areas 19, 20 and 21; July 18, 6:00 p.m.
Opening date .....	Areas 17, 18, and Fraser River district; July 28, 6:00 a.m.
Closing dates .....	To be based on catch equal to U. S. catch, including estimated Fall catch, and closed on 24 hours' notice by authority to be given Canadian Chief Supervisor of Fisheries.
Gear restrictions .....	Canadian fishermen may use no gill-net gear of mesh less than 6½ inches stretch measure after September 13, 6:00 a.m.
Weekly closed period .....	72 hours, in all Canadian convention waters.
Unlawful possession of sockeye..	In Areas 19, 20, and 21 prior to 6:00 p.m., July 18;



In Areas 17, 18, and Fraser River District prior to 6:00 a.m., July 28; and,  
At such other times as may be ordered by Chief Supervisor."

The new regulations indicated that during all periods closed to the sockeye fishery it will be unlawful to possess any of this species taken from any of the American or Canadian convention waters.



### Proposed Changes in Railway Express Charges

The Railway Express Agency, Inc., on June 17, 1948, issued proposed classification changes which will become effective on or about September 1, 1948. These changes refer to minimum charges which must be added for ice in shipments of fresh and frozen fish and shellfish. Minimum charges for water ice will be in accordance with the proposed new classification:

- (a) For fresh or frozen fish, excluding the items mentioned in (b), 50 percent is to be added to the net weight of the fish. At present, 25 percent is added.

In addition, a change is made with respect to the charge when dry ice is used and Rule 1(b) is to apply:

- (b) For crawfish, crawfish tails, crab meat, dressed frogs and frog legs, live or boiled lobsters, lobster meat, lobster tails, shrimp and shrimp meat, 75 percent is to be added to the net weight of the shipment. At present, 50 percent is added.
- (c) For mixed shipments of fish and oysters, 50 percent is to be added to the net weight of the shipment. At present, 25 percent is added.

In all these cases, the minimum addition is to be charged unless the actual gross weight is less at time of shipment. The Fish and Wildlife Service estimates that the increase will cost the industry about 1.2 million dollars or about 12 percent of the present railway express shipping costs. Interested shippers, desiring to enter objection to or otherwise comment on any of these classification changes had the opportunity to do so before August 1, 1948.

In the event that the Railway Express Agency, Inc., despite opposition of the shippers, will file the proposed changes with the Interstate Commerce Commission, a further opportunity will be available for shippers to protest these increases before that body.

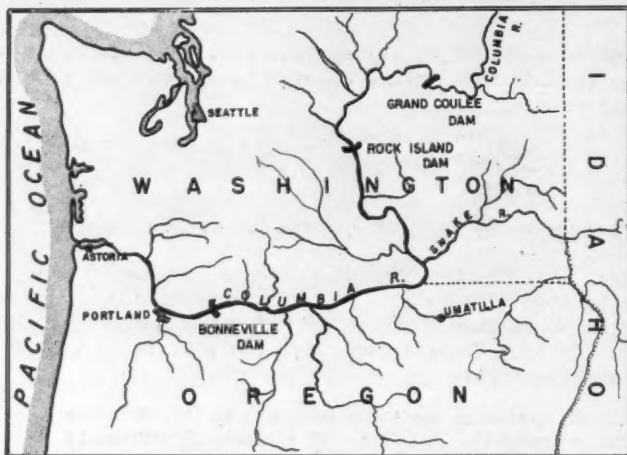


### Salmon Restoration on Lower Columbia River

Development of salmon spawning grounds on Columbia River tributaries located below the McNary Dam was assured when President Truman signed the Army Civil Functions Appropriation Bill for 1949 on June 26, the Fish and Wildlife Service announced on July 9.



The bill authorizes the expenditure of \$1,000,000 for hatchery construction and river clearance by the Fish and Wildlife Service, cooperating with the States of Washington and Oregon.



COLUMBIA RIVER AND TRIBUTARIES

The fund became available on July 1. It will be used to remove old dams, rock slides, and timber obstructions on tributary rivers. This will enable salmon and steelhead trout to migrate freely to rehabilitated spawning grounds.

Transfer of fish-spawning areas from headwater Columbia River streams to a number of lower-river tributaries has been made necessary by Columbia River Basin construction projects. Such dams as the McNary at Umatilla, Ore., to be completed within the

next four years, and the recently authorized power and navigation dams on the Snake River interfere with natural salmon and steelhead migratory movements.

Under the new Fish and Wildlife Service salmon restoration program, State fishery officials of Washington and Oregon will supervise the clearing of obstructions from the Columbia River tributaries and will operate their fish hatcheries and the Fish and Wildlife Service and the States will cooperate in rehabilitating old and constructing new hatcheries.



### West Coast Halibut Season Closed

The closing of the halibut season in Areas 1A, 3, and 4 was announced on June 17 by the International Fisheries Commission. The following is the notice issued by the Commission:

#### NOTICE

Under authority of the Convention between the United States of America and the Dominion of Canada for the preservation of the Halibut Fishery of the Northern Pacific Ocean and Bering Sea, and as provided by regulations effective March 6, 1948, the International Fisheries Commission has announced that the closed season in Area 1A, Area 3 and Area 4 will begin at

12 midnight of the 11th day of July.

This will terminate all halibut fishing on the Pacific Coast of Canada and of the United States, including Alaska, until after the end of the closed season as defined in the said regulations.



Under the provisions of the aforesaid regulations, permits for the retention and landing of halibut caught incidentally to fishing for other species with set lines in any area will become invalid at 12 midnight of November 15th.

## INTERNATIONAL FISHERIES COMMISSION

By

G. W. Nickerson, Chairman

Milton C. James, Secretary

June 17, 1948

This is the earliest closing date for these Areas in the history of the International Fisheries Commission. This year's West Coast halibut season was only 72 days long compared with 109 days in 1947. The 1947 season closed August 17, which was two days earlier than in 1946. The catch limits for Areas 3 and 4 remained the same as in 1947; namely, 28,000,000 and 500,000 pounds, respectively.

The closing of Areas 1A, 3, and 4 followed the trend established by the closing of Areas 1B and 2 on June 1. This year's season for Areas 1B and 2, with a quota of 25,500,000 pounds, 1,000,000 pounds over that set for 1947, was 32 days long compared with 39 days in 1947, and 42 days in 1946.

When complete data on production are available, they are expected to show that the 1948 catch will be somewhat larger than in 1947.



## Wholesale and Retail Prices

Sharp increases in prices of most farm products and foods were largely responsible for an increase of 0.4 percent in the wholesale index for all commodities on May 15 compared with the previous month, and an increase of 11.2 percent above

Wholesale and Retail Prices

Item	Unit	Percentage change from--		
		May 15, 1948	April 1948	May 17, 1947
<b>Wholesale: (1926 = 100)</b>				
All commodities	Index No.	163.5	+0.4	+11.2
Foods	do	178.9	+0.1	+11.0
<b>Fish:</b>		May 1948	April 1948	May 1947
Canned salmon, Seattle:				
Pink, No. 1, Tall	\$ per doz. cans	5.171	0	+68.7
Red, No. 1, Tall	do	6.402	0	+17.2
Cod, cured, large shore, Gloucester, Mass.	\$ per 100 lbs.	14.500	0	+7.4
<b>Retail: (1935-39 = 100)</b>		May 15, 1948	April 15, 1948	May 15, 1947
All foods	Index No.	210.9	+1.4	+12.4
<b>Fish:</b>				
Fresh, frozen, and canned	do	305.0	-0.7	+19.6
Fresh and frozen	do	261.3	-1.4	+14.9
Canned salmon: Pink	\$ per lb. can	52.4	+0.6	+29.7

the corresponding period a year ago, according to the Bureau of Labor Statistics, U. S. Department of Labor. The wholesale index for foods followed the same trend



except that the increase was less and amounted to only 0.1 percent over the previous month, but was 11.0 percent over a year ago.

The average wholesale prices of canned pink and red salmon during May 1948 remained at the same levels as the previous two months. Canned pink salmon was, however, 68.7 percent, and canned red salmon, 17.2 percent higher than a year ago.

Retail prices of foods increased 1.4 percent as of May 15, 1948, and brought the retail food index for 56 large cities to 210.9 percent of the 1935-39 average, and 0.6 percent above the peak reached in January 1948, prior to the break in commodity market prices. The food index is now 12.4 percent above a year ago. The usual seasonal decline in the retail price index for fresh and frozen fish continued due to increased supplies and a slackening in demand. Fresh and frozen fish declined 1.4 percent compared with the previous month, but was 14.9 percent greater than a year ago. The average retail price of canned pink salmon continued to increase and was 0.6 percent over the previous month and 29.7 percent higher than the previous year.



### THE ELECTROSTATIC SMOKING OF SARDINES

In experiments on a semi-commercial scale, sardines were electrostatically smoked in unsealed cans. As the cans were conveyed through the smoking chamber, they formed the negative side of an electric field of 14,000 to 23,000 volts. In about 12 seconds passage time, the sardines were sufficiently smoked, and the conveyor carried the cans onward to be filled with oil and sealed.

Best results were obtained when the smoke passed from the smoke furnaces through a washing chamber--where soot and some of the moisture and acrid components were deposited--and then through a heater before entering the smoke precipitation chamber.

A pilot-plant apparatus was developed which is capable of smoking the sardines in the cans at a rate of 400 cans per minute. (Present methods of smoking require from  $\frac{1}{2}$  to 2 hours, the rate of smoking depending on the amount of equipment and space available.) Several hundred cases of sardines have been electrically smoked in this apparatus and distributed commercially.

--Fishery Leaflet 270





## Canada

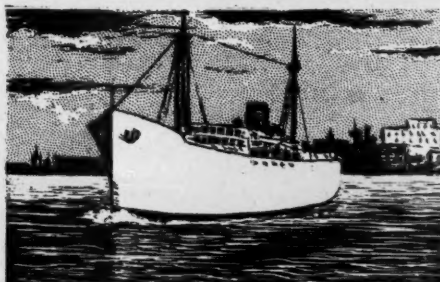
**FISH EXPORT PROGRAM:** In reply to a question in the Canadian House of Commons on May 10, 1948, as to what, if any, efforts are being made to stimulate the sale abroad of Canadian fish, the Parliamentary Secretary to the Department of Trade and Commerce gave the following reply, according to the American Embassy at Ottawa, Canada:

"The trade commissioner service is so organized that trade commissioners are kept continuously posted on the supply position of various commodities in Canada, and are urged to promote the sale of all commodities, particularly those which are in excess of our immediate domestic requirement.

"Having regard to the current supply position, special instructions were sent to the trade commissioners, in countries where particular types of fish would find a most ready sale. Washington has been advised of the availabilities of certain types of fish and the various U. S. government purchasing agencies have been acquainted with our supply position.

"Recently an interdepartmental fisheries export committee was organized for the purpose of ensuring the best possible coordination of the efforts of the two departments - Trade and Commerce and Fisheries - and the trade, to market Canadian fish abroad. Steps have been taken to create a senior trade commissioner position who will specialize in the marketing of fish in the same manner as the agricultural and timber trade commissioners deal with their commodities."

The interdepartmental fisheries export committee referred to in the above statement was actually set up on April 9, 1948, and consists of representatives of the Departments of Fisheries and Trade and Commerce, with Mr. G. A. Newman, Assistant Director, Export Division, Department of Trade and Commerce, as Chairman. It is understood that special attention is being given by the committee at the moment to the decline in exports of Canadian fish as the result of currency restrictions in a number of foreign markets.



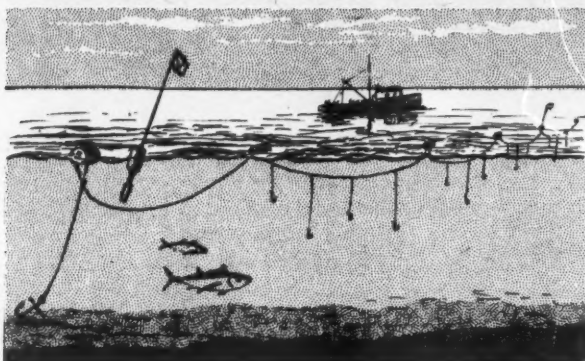
While not directly related to the setting up of the interdepartmental committee, it may be noted that, as a part of the same general effort to stimulate exports, resolutions adopted at the recent annual meeting of the Fisheries Council of Canada requested revision of the United States Customs Tariff on salt fish, canned salmon, and canned tuna. These resolutions, according to a report by the Canadian Fisheries Council, were referred to the Departments of Fisheries and Trade and Commerce. The latter Department is stated to have informed the Council that the items named have been noted for negotiation with the United States when-



ever the opportunity becomes available and that briefs from the industry for the guidance of that Department in preparing representations to the United States authorities would be welcomed.

\* \* \* \* \*

**LONG LINE TUNA FISHING IN BRITISH COLUMBIA:** Under the supervision of the Dominion Department of Fisheries, three fisheries vessels will be used this season as survey ships in off-shore waters of British Columbia, according to the American Consulate at Victoria. The three survey boats are the Laurier, the Kitimat, and the Howie. These vessels will send out frequent broadcasts to provide fishermen



TUNA FISHING--LONG LINE METHOD

with data regarding water temperature, location of tuna schools, depth of tuna schools, feeding habits of the tuna, and similar information.

The main purpose of this program is to provide employment for the Canadian halibut fleet, which, due to the short halibut season, is idle for a great portion of the year. The method proposed for tuna fishing is that used successfully by the Japanese for many years before the war in their tuna fisheries, that is, the long line method. As the halibut

boats are already equipped for a type of long line fishing, they may not need to re-equip themselves completely at the end of the halibut season.

It has only been in the last two or three years that the British Columbia fishermen have done any tuna fishing. Up until this year, all tuna taken was caught by trolling. In 1947, approximately 900,000 pounds were taken, mostly albacore, with some skipjack. The prices varied from \$500 to \$600 per ton.

In addition to the survey vessels obtaining data, captains of fishing vessels are being furnished with special logs in which to record the same information. It is expected that after this year, when the information obtained by the survey ships and from the logs of the fishing boats themselves is tabulated and evaluated, the Department of Fisheries will be able to furnish specific information to fishing boats on the probable location of tuna schools, feeding habits of the fish, depth of water at which the tuna schools are running, and water temperatures at which good catches can be expected.

On May 4, 1948, the Chief Supervisor of Fisheries for the Dominion Government conferred with fishermen and heads of fishing interests in Victoria regarding the proposed long line tuna fishing methods, and the Canadian Government's decision to furnish three survey vessels to collect data on the fishing grounds off the coast of Vancouver Island and the Washington and Oregon coasts. The fishermen and heads of the fishing interests were very interested in the discussion, and expressed a desire to send fishing boats out to see what success they might have with the long line method. The high prices paid for tuna last year, compared with the relatively low price for halibut received this season, probably helped the fishing interests to decide to attempt tuna fishing by the long line method.



## Great Britain

**WHITE FISH AND HERRING INDUSTRIES BILL:** The White Fish and Herring Industries Bill, which was introduced in the British House of Commons on March 10, was given its second reading in the House of Commons on April 29, according to the American Embassy, London, England.

The outstanding features of the bill are its provisions for:

1. The prevention of overfishing in the North Sea.
2. Grants for assistance to inshore fishermen in England, Wales, and Scotland.
3. An appropriation of \$4,030,000 (£1,000,000) for financing projects for the conversion of herring to oil and other products.

The first two clauses of the bill deal with the question of overfishing in the North Sea, and are drawn up in accordance with the Overfishing Convention of 1946. The Minister of Agriculture and Fisheries is empowered, under the bill, to fix the size of mesh to be used in fishing in British territorial waters, and to license British vessels to fish for white fish in the North Sea. Fishing without such license is to be prohibited. For the purposes of this bill, the limits of the North Sea are defined.

In regards to the second clause dealing with the limitation of the tonnage of the North Sea fleet, it is noted that the system would not be brought into force until after an appointed day which could not be fixed until Fishery Ministers were satisfied that other countries were taking equivalent measures. Also, certain classes of boats are exempt from the provision to have licenses.

Comments of the press, members of the House of Commons, and the fishing industry pointed out that, under the 1946 Convention, the number of fishing vessels of over 40 feet of each country fishing in the North Sea should not exceed 85 percent of the total fishing power in 1938, and that, at present, the British fishing fleet is not up to 85 percent of its 1938 capacity.

Other sections of the bill provide for loans and grants to a total of \$6,045,000 (£1,500,000) to assist inshore fishermen in purchasing, improving, and recondition-



"AT DAWN THE HERRING FLEET STEAMS OUT TO SEA"



ing fishing boats and tackle. The Inshore Fishing Act of 1945 provided \$5,239,000 (£1,300,000) for this purpose, but it is expected that this will be exhausted by September 1948, so that the additional funds will be required. In addition, the bill provides a sum not to exceed \$403,000 (£100,000) to be used for loans over a period of five years to fishermen's cooperative societies for initial operation and development expenses. There are fifty such cooperatives in England and Wales, and three in Scotland.

The bill also would give the Herring Industry Board an additional appropriation of \$5,037,500 (£1,250,000) for the development of herring fishing, \$4,030,000 (£1,000,000) of which is to be used for the establishment of factories for the conversion of herring to oil, fish meal, etc. The first of these factories should be in operation by this summer.

Press comments on the expansion plan for herring products are that it is anticipated that 175,000 metric tons of herring can eventually be used for the production of some 17,000 metric tons of oil used in the manufacture of margarine. While this amount is small compared to total consumption, it would save approximately \$6,045,000 (£1,500,000) worth of imports at current prices. The press states that the Herring Industry Board has conducted experiments on the extraction of oil from herring, and has developed a process which is considered superior to any other now being used and which will make it possible to offer better prices to fishermen for herring for this purpose. It is stated that, at present, the price of herring for oil extraction is  $1\frac{1}{2}$  cents per pound as compared with  $4\frac{1}{2}$  cents per pound for fresh herring for consumption. The Herring Board is empowered to offer a flat rate for the total landings of herring at certain ports, a scheme which has been tried in the Western Isles and which has increased landings.

The subject of the fishing industry and its problems is one which has been receiving constant attention by members of the British House of Commons, and the debate on this bill, which was a lengthy one, was well attended. While a large part of the discussion was devoted to domestic measures and conditions, the first part of the debate emphasized the importance of international agreements with regard to overfishing in the North Sea, a matter which it is felt should be discussed in connection with plans for the Western Union of Europe. Some fear was expressed that Germany, with the help of the European Recovery Program, might embark on extensive fishing operations in the North Sea which, if not controlled by some international agreement, would prejudice the interests of the other countries looking to that area for fish.

The proponents of the bill pointed out that statistics of the fisheries between the wars showed that overfishing took place in the North Sea. The replenishment of stocks during the First World War, when there was little fishing in the North Sea, encouraged activity. Immediately afterwards, the stocks declined markedly, and by 1937, were considerably below the level of 1913. During the Second World War, the North Sea fish had a second chance to multiply and again increased in numbers, but even after three years, the weight of fish caught for a given effort and the percentage of smaller fish showed that the results of overfishing were already to be seen.

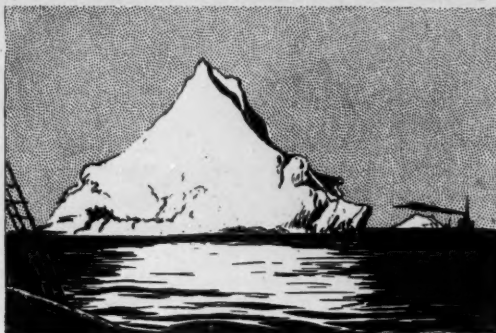
It was in 1946 that the British Government convened an international conference with a view to limiting the tonnage of vessels fishing in the North Sea, and in accordance with the view that overfishing could be controlled only through international agreement. The Convention drawn up by that conference of the twelve nations concerned prescribed new minimum sizes for mesh of nets. The standard



Advisory Committee, set up after the conference, proposed further measures, including a British proposal to limit the tonnage of British vessels fishing in the North Sea to 85 percent of the tonnage in 1938. The present bill introduced in the House of Commons is to implement the 1946 agreement.

The discussions stressed also the importance of installing quick-freezing and cold-storage plants at the principal fishing ports, and there was considerable discussion of the need for providing British fishermen with boats and nets.

To the New England, Canadian, and Newfoundland fisheries, the depletion of the North Sea fisheries is a potential danger sign. It is not unreasonable to expect that, with steady improved fishing vessels and equipment, the twelve nations fishing the North Sea will look elsewhere for their fish, if the North Sea fisheries will not supply their needs. England, it is reported, is already operating in Arctic waters. A treaty to bring about fishery conservation and the protection of fishery resources in the North Atlantic is of extreme importance to the United States, Canada, and Newfoundland.



ARCTIC FISHING GROUNDS



## Greece

**EXPANSION OF FISHING INDUSTRY:** Expansion of the Greek fishing industry and establishment of the means for effective marketing and distribution of fishery products have been undertaken by the American Mission for Aid to Greece, according to the Department of State publication 3149 entitled Third Report to Congress on Assistance to Greece and Turkey. Experiments in refrigeration on the larger fishing vessels, conducted in collaboration with the fishing industry and the Greek Government, have been highly successful. Development of this innovation in Greek fishing will enable ships to stay out until fully laden and permit the exploitation of waters heretofore unworked because of the distance from markets. As the development work in extending fishing proceeds, plans are being laid to establish refrigeration in marketing centers and for inland transportation, thereby enabling the Greek fishing industry to make a greater contribution to the domestic food supply.

\* \* \* \* \*

**SPONGE MARKET, 1947:** The sponge fishing industry in Greece comprises a fleet of approximately 375 medium and small vessels which maintain a crew of about 4,200 men, according to the American Embassy at Athens.

Statistical information supplied by the Bureau of Fisheries of the Ministry of National Economy places the production of sponges in 1947 at 331,000 pounds, grouped as follows:



<u>Species</u>	<u>Quantities by Grades</u> (All figures in pounds)		
	<u>A</u>	<u>B</u>	<u>C</u>
Turkey cup and Turkey toilet	7,700	4,400	4,400
Zimocca	15,400	8,800	8,800
Honeycomb or Venise	121,500	88,000	72,000
Total .....	144,600	101,200	85,200



ELEPHANT EAR SPONGE - MEDITERRANEAN SEA

More than 67 percent of the annual catch originated from the African coast. Exports in 1947 totaled 125,600 pounds valued at approximately \$800,000. Of this amount, 51,643 pounds, valued at approximately \$270,000, were exported to the United States.

According to the Grecian Bureau of Fisheries, stocks on hand as of December 31, 1947, processed and unprocessed, amounted to approximately 198,000 pounds of undetermined species and grades. Prices, according to Piraeus sponge trade sources, are approximately as follows:

<u>Species</u>	<u>Average Prices per Pound F.O.B. Greek Port.</u> <u>by Grades (In U. S. Dollars)</u>		
	<u>A</u>	<u>B</u>	<u>C</u>
Honeycomb from Greek Islands	\$11-\$13	\$7-\$8	\$3.50-\$4
Honeycomb, Mandruka-Bengazi-Bomba	\$16-\$17	\$9-\$10	\$4.50-\$5
Turkish solids	\$14.50-\$16.50	\$7.25-\$8	\$3.50-\$4.50
Elephant's ear	\$18.20	\$9.10	\$4.60
Zimocca	\$11.30	\$6.80	\$3.50

The local demand for sponges is very limited. The season's catch is usually sold pre-emptively to merchants who often finance the fishing expedition largely themselves. The sponges are then processed and stored by merchants for export purposes.

It is predicted that sponge fishing in 1948 will continue under the same conditions as in 1947 and that business prospects for the sale and export of sponges will improve.



### Iceland

FISHERIES REVIEW, 1947: Introduction: Fisheries exports in 1947, which made up over nine-tenths of the total, suffered from the failure of the summer herring catch, although the winter herring season, which started off the West Coast in November, proved exceptionally good. It gave rise, however, to a costly transportation problem, as the processing plants (for the reduction of the herring into oil) are nearly all located in the North. New trawlers, imported from Great Britain, were used very successfully in the cod fisheries.



The principal difficulty encountered by Iceland, in connection with fish sales abroad, remained the high costs of Icelandic products, brought about by inflated wages and prices at home. In order to dispose of the country's quick-frozen fillets, a system of tie-in sales with herring oil was inaugurated in agreements with the United Kingdom and the Soviet Union, and as a means of maintaining the operation of the fisheries, the Government was forced to spend millions of dollars in a form of subsidy on fish sales connected with the "Guaranteed Minimum Price Law."

**Production:** Icelandic economy, being almost entirely dependent on exports of the country's fishery products, is particularly sensitive to the vagaries of the seasonal catch. The year 1947 showed a marked improvement over the preceding two years (Table 1). The over-all fisheries production was about 30 percent greater than in 1946, and only 7 percent less than the record year of 1944.

Table 1 - Total Fish and Herring Catch for Last Seven Years

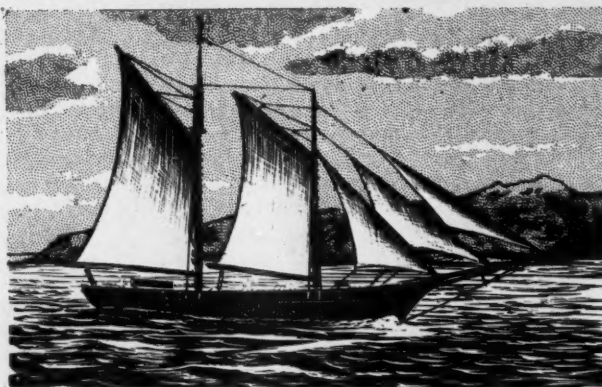
Year	Herring <sup>1/</sup>	Total <sup>2/</sup>
	Metric Tons	Metric Tons
1941 .....	96,270	291,553
1942 .....	145,135	335,895
1943 .....	181,958	381,497
1944 .....	221,843	461,314
1945 .....	59,209	283,069
1946 .....	131,721	326,277
1947 .....	217,000	431,170

<sup>1/</sup> Given as whole fish.

<sup>2/</sup> Gutted wet fish with head.

The relatively good fish production in 1947 was almost entirely due to an exceptional winter herring catch, as the summer herring season was a failure for the third consecutive year. The summer catch, which totaled 122,462 tons as compared with 130,702 tons in 1946, produced 20,203 tons of herring oil and 17,960 tons of fish meal.

The winter herring fisheries, which developed in November off the West Coast of Iceland, exceeded the 1946 winter catch some hundred-fold. The usual small quantity of lean winter herring is generally frozen for bait on the West Coast. It was decided, however, in view of the magnitude of the 1947 winter catch, and the great demand for herring oil, to process the fish for oil. The



OLD TYPE ICELANDIC FISHING SCHOONER

oil content of the winter herring was 15 percent, which, although somewhat less than that of the summer fish, was nearly twice that of the usual winter catch. Since all the processing plants are located off the North Coast, and all available fishing vessels (around 168) engaged in the fisheries, sufficient ships could not be found to take care of the transportation problem. Foreign vessels had to be chartered, at a cost of \$460,000 in foreign exchange through the end of the year. The additional expenses involved in freight, storage, handling, and waste, increased



considerably the cost of production of the winter herring oil, and it is estimated that this cost amounted to around \$520 per ton, as compared to an average of about \$430 per ton for the summer production.

As a partial solution to the problem of processing winter herring in the future, it was decided to purchase a ship and convert it into a floating herring factory. However, these plans had not yet materialized by the end of the year.

Outside of herring, the catch of most types of fish (cod, haddock, and other white fish) was about the same in 1947 as in 1946 (Table 2).

Table 2 - Total Fish Production by Mode of Preparation

Mode of Preparation	1947 <sup>1/</sup>	1946 <sup>2/</sup>
	Metric Tons	Metric Tons
Fish on ice .....	74,678	90,680
Frozen fish .....	71,147	73,113
Dried fish .....	-	736
Canned fish .....	318	1,055
Wet salted fish .....	75,105	47,440
Home consumption .....	2,513	2,472
Fish frozen for bait.....	6,806	5,274
Herring to factories .....	200,603	105,507
Total .....	431,170	326,277

<sup>1/</sup> Herring is given as whole fish.

<sup>2/</sup> Gutted wet fish with head.

Less fish was iced and more salted in 1947 than in 1946, in anticipation of a better market for the latter product. The drying of fish for exports to southern Europe, which used to be very important in prewar years, was drastically reduced during the war because of lack of markets and has not been resumed in quantity since. This is due principally to the large expansion of the frozen fish industry started during the war, to the high labor costs involved in the drying of fish resulting from the inflation, and to the uncertainty of the market for this commodity. The smaller production of canned fish was also accounted for by the uncertainty of the market for this commodity.

**Principal Developments:** Principal developments in the fisheries in 1947 consisted in the continued expansion of the frozen fish industry and the acquisition of 18 new trawlers from the United Kingdom. These were the first of the 30 vessels of this type which Iceland is having built in Great Britain in connection with the "New Construction Program" undertaken by the Icelandic Government in 1944. The trawlers, which average 650 tons, and cost around \$500,000 each, have proved very successful. They fish cod and other white fish on the high seas, and their annual catch averages around 12,000 to 13,000 tons, as compared to around 6,000 to 8,000 tons with the older trawlers.

**Marketing:** Exports of the country's fisheries, which constituted 92 percent of all exports, amounted in 1947 to \$40,764,377. This was about 10 percent more than in 1946, but far short of Icelandic estimates at the beginning of the year, which had placed total exports as high as \$130,669,000. Actual exports of principal fish products are shown in Table 3.

In spite of the optimism which prevailed in Iceland at the beginning of the year, the country encountered great difficulties in the marketing of its fish. This was largely due to the fact that the world demand for fish had declined, and that Icelandic prices were generally above those of competing nations, particularly



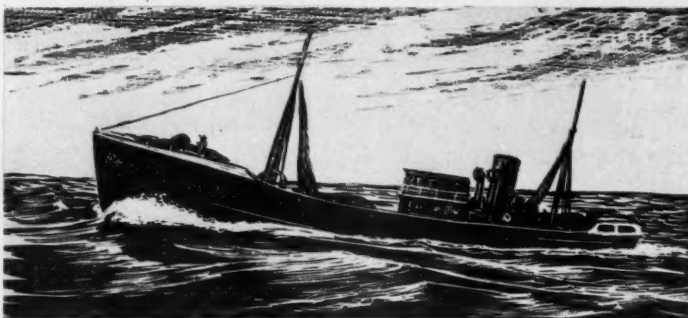
Norway. With wages and the cost of living up some 310 percent over 1939, the cost of production of Icelandic fish, even with the help of modernized equipment, had risen sharply. Iceland could not sell at these inflated prices in a buyer's market.

Table 3 - Fisheries Exports by Commodities

Item	Quantity		Value	
	1947	1946	1947	1946
	Metric Tons	Metric Tons	U.S. \$	U.S. \$
Fish, fresh	61,312	72,699	6,569,993	9,549,622
frozen	25,439	23,998	10,640,012	9,390,818
salted, cured	301	16	121,900	9,941
salted, uncured	26,622	10,908	7,139,737	2,748,812
salted, in bbls.	1	625	270	160,023
dried	-	108	-	76,667
canned	340	514	222,345	442,750
Herring, fresh & frozen	867	48	68,733	8,441
salted & cured	5,380	15,073	1,675,924	4,307,482
Fish meal	5,467	6,169	861,841	628,171
Herring meal	11,155	10,197	1,667,779	1,227,706
Oil, cod liver	5,407	7,745	3,521,011	4,386,297
herring	20,527	17,534	7,977,121	4,125,301
Ros, salted	1,539	1,398	297,711	414,813
Total .....	164,357	167,032	40,764,377	37,476,844

In order to keep up the production of the fisheries, the Government was forced to continue the "Guaranteed Minimum Price Law," which had been introduced as an emergency measure in 1946. According to this law, which was later incorporated into the Economic Bill passed in December 1947, the Government guarantees a minimum export price for certain types of fish,

and the difference between this figure and the actual sales price is paid by the National Treasury. Although the Law did not cover herring, nor the fish caught by the big steam trawlers (which export their own catch), it is estimated that the loss to the Government, involved in this form of subsidy, amounted to around \$3,500,000 in 1947. Sales of cod accounted for about 90 percent of this figure.



ICELANDIC STEAM TRAWLER

Trade negotiations were entered into in February with Iceland's two largest customers, the United Kingdom and the Soviet Union, and lasted until May. A system of tie-in sales was decided upon, whereby the United Kingdom and the Soviet Union would receive 40 percent each of Iceland's production of herring oil, and would purchase 2 pounds of frozen fillets for each 3 pounds of oil. The British further agreed to take up to 4,000 tons of fillets immediately without waiting for the herring oil. Actual sales under the Agreements amounted to 9,623 tons of herring oil and 6,098 tons of frozen fish for the United Kingdom, and 8,000 tons of oil and 5,333 tons of frozen fillets for the Soviet Union. Average prices paid by the British were \$380 per ton for herring oil and \$465 per ton for fillets. Prices



paid by the Russians averaged around \$435 per ton for oil and \$383 per ton for fish. In these sales only the British paid as much as the "guaranteed price" for the fillets and only the Russians paid as much as the production cost for the herring oil. Both countries made further purchases of these commodities much later in the year, at somewhat reduced prices (Table 4).

Table 4 - Fisheries Exports by Countries--1947  
(Quantity and Value)

Country	Fish, fresh <sup>1/</sup>		Fish, frozen <sup>1/</sup>		Fish, salted <sup>2/</sup>		Fish Meal <sup>3/</sup>		Fish Oil <sup>4/</sup>		Miscellaneous <sup>5/</sup>		Total	
	Metric Tons	U. S. \$	Metric Tons	U. S. \$	Metric Tons	U. S. \$	Metric Tons	U. S. \$	Metric Tons	U. S. \$	Metric Tons	U. S. \$	Metric Tons	U. S. \$
United States	-	-	1,006	364,555	513	219,369	420	57,453	2,152	1,470,776	116	99,364	4,232	2,211,517
Belgium	-	-	-	-	2,000	532,259	-	-	85	38,589	-	-	2,085	570,948
Czechoslovakia	-	-	1,350	607,567	95	27,844	6,264	1,070,151	1,762	447,439	26	27,868	9,517	2,180,919
Denmark	-	-	-	-	1,014	246,095	1,810	267,845	-	7,807	-	-	2,835	521,508
England	61,690	6,604,758	9,287	4,326,217	2,798	730,361	2,863	356,907	9,410	3,444,854	170	65,797	82,218	15,528,594
Finland	-	-	-	-	523	209,327	-	-	-	75	12,217	-	598	221,544
France	-	-	3,628	1,491,851	-	-	-	-	301	198,149	1,057	178,899	4,986	1,868,899
Germany	464	27,993	-	-	2,102	574,538	607	98,525	93	65,043	10	8,809	3,276	774,908
Greece	-	-	-	-	7,705	2,034,020	-	-	-	-	-	-	7,705	2,034,020
Holland	-	-	886	405,069	-	-	3,337	484,992	72	38,665	2	721	4,297	929,447
Italy	-	-	1,362	523,870	10,946	3,037,959	-	-	240	144,534	-	-	12,548	3,706,363
Norway	-	-	-	-	-	-	-	-	1,331	695,132	-	-	1,331	695,132
Palestine	-	-	-	-	43	17,942	953	157,875	22	16,114	4	10,762	1,022	202,693
Sweden	-	-	-	-	2,149	539,740	-	-	99	71,301	400	103,818	2,648	774,959
U. S. S. R.	-	-	7,840	2,922,159	2,057	602,966	-	-	10,265	4,829,608	-	-	20,212	8,353,733
Other Countries	-	-	25	5,699	324	105,450	368	35,872	31	30,171	19	12,401	787	189,033
<b>Totals</b>	<b>62,154</b>	<b>6,632,751</b>	<b>25,464</b>	<b>10,645,987</b>	<b>12,304</b>	<b>8,337,831</b>	<b>115,622</b>	<b>2,529,620</b>	<b>26,934</b>	<b>11,498,132</b>	<b>1,878</b>	<b>520,616</b>	<b>154,357</b>	<b>40,764,377</b>

<sup>1/</sup> Includes herring

<sup>2/</sup> " salted and cured herring

<sup>3/</sup> Includes herring meal

<sup>4/</sup> Cod liver and herring oil

<sup>5/</sup> Canned fish and salted roes

In addition, Great Britain, as in previous years, purchased practically all of the Icelandic iced fish production. Most of the wet salted fish was exported to Italy and Greece (in part through U. S. Mediterranean Relief), and Czechoslovakia was the largest importer of herring and fish meal. Nearly all of the cod liver oil production went to the United States and the Soviet Union, while most of the cured herring was exported to the Soviet Union, Sweden, and Finland (Table 4).

Icelandic fish exports to the United States declined by more than 60 percent in 1947 (Table 5).

Table 5 - Exports to United States

Product	1947	1946
	U. S. \$	U. S. \$
Cod liver oil .....	1,468,000	3,382,000
Frozen fillets .....	364,000	1,245,000
Salted herring .....	217,000	327,000
Herring & fish meal .....	57,000	633,000
Canned fish .....	96,000	227,000
Other .....	101,000	83,000
<b>Total exports .....</b>	<b>2,303,000</b>	<b>5,897,000</b>

An additional sale of about \$700,000 worth of herring meal (from the winter catch) was negotiated in December 1947.

Following a suggestion in May by the United States and Great Britain, negotiations were entered into with Iceland concerning the possibility of shipping Icelandic iced fish to the Bizonal Area in Germany. A tentative agreement to ship 70,000 tons of fish was reached, and a few small deliveries of herring made in 1947, although no final settlement had been arrived by early in 1948.

**Fisheries Chief Industry:** Almost all of Iceland's industry is related to the country's fisheries, and consists chiefly in the quick freezing of cod and other white fish, the processing into oil of herring and cod, and the canning of various fish.



The great development of the quick-freezing industry in recent years, which resulted from the demand for frozen fish during the war, continued throughout 1947. Three more quick-freezing plants were completed in 1947 in addition to the 65 operating at the beginning of the year, and eight others were under construction and expected to be completed in 1948. The total production capacity of these plants in 1947 rose to 1,092 tons per 20 hours, and will reach 1,218 with the completion of the new plants in 1948. The production figure for 1947 is already 50 percent above that of January 1945, and still other plants are in the planning stage. It is estimated that the total production of plants completed and re-modeled since 1945 will have increased 110 percent by the beginning of 1950.

The production costs for these quick-frozen fillets entail selling the fish at prices somewhat above the world market unless a loss is to be sustained. The required price has largely been obtained recently through "tie-in sales" or in "clearing agreements."

Two new herring processing plants were completed in 1947, bringing the total to 17, with an over-all production capacity of 9,868 tons per day. This represented an increase in production of 2,025 tons per day over 1946. Canning decreased somewhat in 1947.

**Fishing Fleet:** By the close of 1947, Iceland owned some 732 vessels totaling 60,338 gross tons, which represented an addition of 56 vessels (17,462 tons) over the total for 1946. The principal item in this increase was 13 new trawlers (10,123 tons) from the United Kingdom. Eighteen of these trawlers had, in effect, arrived by the end of the year, although only thirteen were actually registered.

Most of Iceland's fleet consisted of small motor-powered craft. Only six vessels exceed 1,000 tons.

The fishing fleet, which accounted for 74 percent of the over-all total (by tonnage) increased from 30,849 tons for 1946 to 44,849 tons by the end of the following year (Table 6).

Table 6 - Icelandic Fishing Fleet by Type and Use - 1947

Fishing Vessels	Steam Vessels	Motor Vessels	Total No.	Tonnage (Gr. Tons)
Trawlers	37	-	37	18,268
Others (over 100 gr. tons)	11	40	51	8,454
Others (under " " " )	-	618	618	18,127
Total .....	48	658	706	44,849

**Labor:** One of the principal problems regarding employment in recent years has been the movement of the workers away from the fisheries toward other occupations in the larger cities (principally Reykjavik). This tendency is the direct result of the increase in the standard of living ashore (particularly in the larger towns), and the system whereby wages are raised in accordance with the price index. One of the main aims of the economic legislation towards the end of the year was to promulgate measures to counteract this tendency, particularly in regard to the fisheries, upon which the very livelihood of the nation depends.





## Japan

**ALLOCATION OF WHALE OIL:** The Department of Army has allocated to Japan about 18,000 metric tons of whale oil, the full quantity of oil produced in the 1947-48 Japanese Antarctic whaling expedition, according to the Natural Resources Section of the Supreme Commander for the Allied Powers. Last year, from a total 12,260 metric tons of whale oil produced by the 1946-47 Japanese Antarctic whaling expedition, the International Emergency Food Council allocated 7,163 metric tons of oil to the United States Military Government in Bremen, Germany.

\* \* \* \* \*

**EXPORT OF FROZEN TUNA TO BE RESUMED BY JAPANESE:** A press release from the Public Information Office of the Far East Command states:

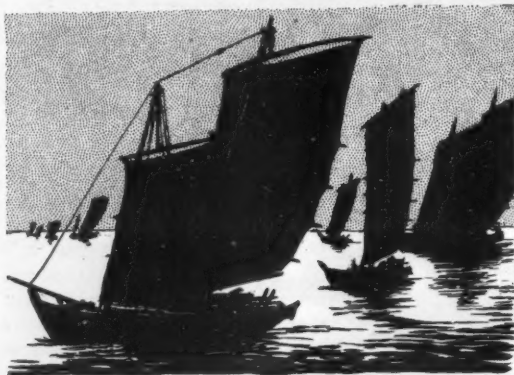
"The Japanese will resume the export of frozen tuna with the first contracts, amounting to 1,500 short tons of albacore tuna, expected to be validated by the Supreme Commander for the Allied Powers during May, Foreign Trade officials in SCAP's Economic and Scientific Section announced on May 19, 1948.

"It will be the first tuna export from Japan since prewar days. Trade officials stated that licenses to export 3,000 tons during the period June-August will be granted by the Japanese Government and validated by SCAP. This figure represents about 40 percent of Japan's prewar tuna trade.

"Twenty Japanese firms have been selected by the Japanese fishing industry to act as shippers, representing 49 fishing companies, which will bring in the tuna."

\* \* \* \* \*

**RADIO BUOYS AUTHORIZED:** Radio buoys strung along heavy duty fishing lines in Japanese fishing waters have been authorized by the Civil Communications Section, General Headquarters, SCAP, a spokesman for the U. S. political advisor in Japan said on June 21, in Tokyo.



FISHING BOATS - JAPAN

Passing ships, strong currents, and high seas sometimes break these lines which are often 30 miles long. The radio buoys will continue to send their signals automatically for about 24 hours, thus allowing fishermen to locate drifting lines, the spokesman explained.

Heavy duty lines usually represent the pooled life savings of several fishermen and at present prices would cost between 5 and 10 million yen. In "deep line" fishing, lighter lines are dropped downward as much as 150 feet from the heavy duty line and are hooked and baited.

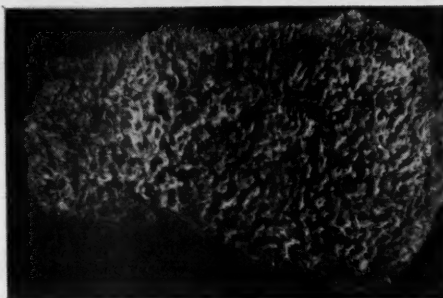
The buoys are powered by six-volt batteries and have a range of 30 to 40 miles. They will operate on 2545 kilocycles and each will send a different signal, thus allowing each buoy to be individually identified. Each buoy contains a copy of the SCAP approved license.



## Lebanon

**SPONGE INDUSTRY:** While sponge fishing currently exists in Lebanon only on a small scale, efforts are being made to modernize the industry, increase production and take fuller advantage of the heavy world demand for sponges than has been done in the past, according to the American Legation at Beirut. Small boats of native divers whose sole piece of equipment is a pair of iron nippers still flock to the sponge beds off Tripoli, Tyre, and Sidon during the spring-summer fishing season, but these individual divers are now feeling competition for the first time from modern methods.

In May of this year, a Tripoli firm of local sponge dealers commenced operations in the sponge beds with fishing equipment purchased early this year from an American sponge company. Should this equipment prove effective, as seems likely, the primitive sponge-gathering methods of Lebanese fishermen will be outmoded, and this country's production will become an increasingly important factor both in world sponge markets and as a badly needed source for foreign exchange.



HONEYCOMB SPONGE - MEDITERRANEAN SEA

Sponge production in the Lebanon is confined to the honeycomb variety (Grades A, B, and C) and a type referred to by trade circles as "fine" (Grades A, B, and C). Estimated 1947 production of these species was 2,640 pounds compared with 1,760 pounds in 1946.

The increase in sponge production in 1947 was reportedly due to an increase in demand for sponges from the United States and the United Kingdom. Prices rose here from 1946 levels, and local exporters increased wages to divers, with a corresponding increase in production.

Exports from Lebanon were approximately 50 percent honeycomb and 50 percent "fine" varieties last year. It is estimated that about one-half of the quantities exported were destined for the United States, with 25 percent going to the United Kingdom and 25 percent to Switzerland and France.

Trade circles estimate that there remains from last year's production about 220-250 pounds of all grades still available on the local market.

Present wholesale prices of sponges on the Beirut market, by species and grade, are as follows:

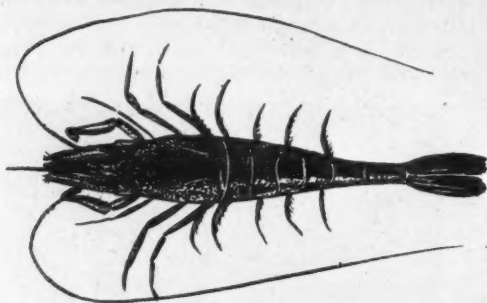
Wholesale Sponge Prices		
Grade	Fine	Honeycomb
	per lb.	per lb.
A	\$8.70	\$6.25
B	6.25	4.89
C	4.30	3.10

These prices represent a decrease of approximately 10 percent from the local wholesale sponge prices of a year ago. Trade circles report that this drop in price is due to the absence of demand on the Beirut market resulting from the present availability of large quantities of sponges in Greece.



## Mexico

**FISHING AND SHRIMPING, JANUARY-MARCH 1948:** The fishing industry developed favorably during the first quarter of 1948, according to the American Embassy



CALIFORNIA SHRIMP

at Mexico City, Mexico. Shrimp fishing was active and the catch abundant in January and February, and although March saw a price decline and the tapering off of the catch, a successful season was assured, as over a million pounds were exported to Los Angeles at favorable prices in February. In addition to the operations in the waters of the Pacific and the Gulf of California, there was active fishing for shrimp off the coast of Veracruz state in the Gulf of Mexico. The catch was said to be valued as high as \$100,000 monthly, of which 95 percent was ex-

ported to the United States. There were no developments in other lines of fishing and limited supplies were reflected by continued high prices for fresh fish in Mexico City and other consuming centers of the Republic.



## Republic of the Philippines

**FISHERY ADVISOR NAMED:** Hugh W. Terhune, Administrator of the Philippine Fishery Program of the Fish and Wildlife Service, has been appointed Honorary Advisor on Fisheries to the Philippine Government by Dr. Elipidio Quirino, President of the Philippine Republic. This was disclosed on July 7 by Albert M. Day, Director of the Fish and Wildlife Service.

Mr. Terhune began his Government service in 1924 as a member of the former Bureau of Biological Survey in the Department of Agriculture. In August 1946, he was appointed to organize and administer the Philippine Fishery Rehabilitation Program, the only part of the Philippine rehabilitation program authorized by Congress on April 30, 1946, which is concerned with the production of food.

Now in operation in the Philippine Islands, the fishery program is producing direct results in the rehabilitation and modernization of the Philippine fishery industries. New fishing grounds are being explored, and knowledge necessary for the conservation and management of the fishery resources by the Philippine Government is being developed.

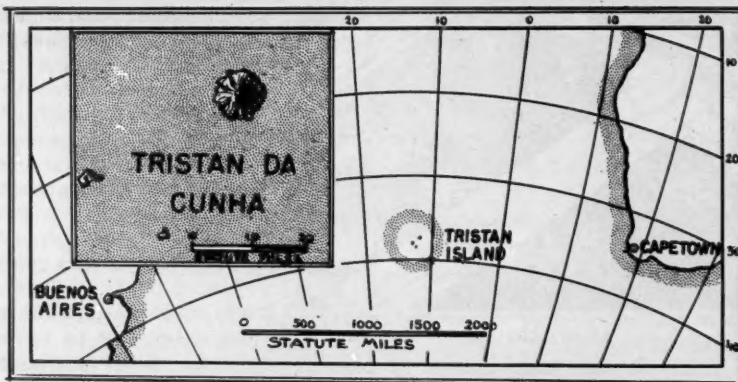
A well-equipped biological, oceanographic, and technological laboratory in Manila and an experimental fish processing plant, both of which were constructed under Mr. Terhune's direction, are being operated under the fishery program. A fleet of three research and experimental fishing vessels, which are the most modern and well-equipped of their types, is also functioning. The program is carried out under Mr. Terhune by 117 employees, 51 of whom are American.





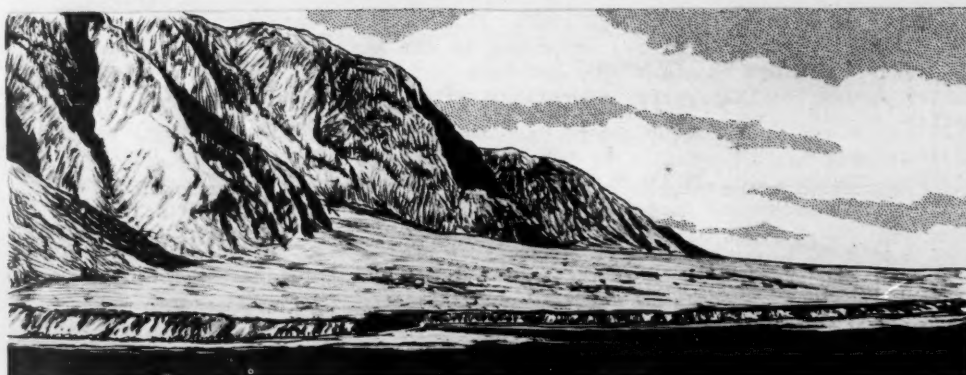
## Tristan da Cunha

**DEVELOPMENT OF A CRAWFISH INDUSTRY:** Concessions have recently been obtained by a South African Fisheries Corporation in the waters surrounding Tristan da Cunha, which promised to have an influence upon the South African crawfish industry. As a result of a recent scientific expedition to this island, crawfish were found in abundance and the announcement has now been made that a \$400,000 crawfish industry will shortly be established at Tristan da Cunha,



according to the American Consulate General at Cape Town, South Africa. The industry is anticipating an annual production of 50,000 cases of frozen crawfish tails representing some 1,600,000 crawfish. The abundance of crawfish in the waters surrounding Tristan da Cunha gives assurance that this target should be met. Further fishing grounds under concession are located at Inaccessible, Nightingale, and Gough Islands in the general vicinity of Tristan da Cunha. The actual crawfish ground at Tristan da Cunha is said to be 45 miles long and  $1\frac{1}{2}$  miles wide.

It is proposed that the Islanders of Tristan da Cunha, hitherto almost completely isolated from modern civilization, be educated as fishermen and that 14-foot standard dinghys with parent vessels be used. According to the South African Shipping News and Fishing Industry Review, 200 fishing days a year may be expected at Tristan da Cunha which greatly exceeds the number of fishing days in South African waters.



EDINBURGH, TRISTAN



It is proposed to establish two cold storage factories, one on the site of the present settlement at Tristan, and a second and larger one at Sandy Point on the presently uninhabited side of the Island.

The Fisheries Development Corporation, according to reports, is proposing, in connection with this new venture, a wide program of social services, economic reorganization, and education, as well as its own medical installations. The company further plans to employ an agricultural expert for the purpose of increasing and expanding the Island's food production to compensate for the decrease in agricultural labor as the Island men are increasingly absorbed into the fishing industry.



SPINY LOBSTERS

In view of the conservation program enforced by the South African Government which limits the quantity of crawfish which may be taken in its coastal waters, the recent development of the

crawfish industry in South West Africa and, in particular, now around Tristan da Cunha may mean a marked increase in the available supply of frozen crawfish tails which have, in recent years, had such a favorable market in the United States. The Tristan da Cunha crawfish appears especially suitable for the American market inasmuch as it possesses a larger tail than the crawfish caught around the waters of the Union of South Africa.

Additional exploration of crawfish grounds are meanwhile being conducted around the Islands of Ascension and St. Helena, reports to date having been exceedingly optimistic.



## Union of South Africa

GROWTH OF FISHING INDUSTRY IN 1947: The following data shows the growth of South Africa's fishing industry, according to the American Consulate General at Cape Town. There has been a steady increase in the activity of the local fishing industry during the last years, especially on fish and shellfish other than the crawfish.

Growth of Fishing Industry in 1947

	1947	Prewar
	lbs.	lbs.
Fish Catch	100,000,000	90,000,000
Crawfish tails, frozen: Production	1,900,000 <sup>1/</sup>	2,228,520
Fish Canneries: Production		
Crawfish	4,100,000 <sup>2/</sup>	4,500,000
Other fish	10,000,000	420,000
Fish Meal	4,000,000	3,000,000
Fish Oils:	U.S. gals.	U.S. gals.
Seal oil	29,167	-
Vitamin oil	83,333	-
Fish body oil	208,333	-

<sup>1/</sup> This amount fixed by regulation as maximum that can be exported.

<sup>2/</sup> Ceiling of 4,100,000 lbs. for crawfish canneries imposed in 1947.



The above data supplements a previous report on South Africa's fisheries appearing in this publication for March 1948, pages 33-35.

\* \* \*

**ERRATA:** Estimated South African production of fish, vitamin and seal oils shown in the March 1948 issue of Commercial Fisheries Review should have been designated in "imperial gallons" instead of "pounds" as shown.



## International

**1947 WORLD FISH PRODUCTION:** Fish landings in Europe during 1947 practically reached the prewar level, and in some countries (e.g., Iceland, Belgium, and Denmark) production was considerably in excess of prewar, according to the April 1948 issue of Economic Review of Food and Agriculture of FAO. Export supplies from northwestern Europe in 1947 are estimated to be approximately equal to the average for the years immediately preceding the war. With continued reconstruction and expansion of the fishing fleets, it is expected that supplies in 1948 will be even greater than in 1947. There may be some difficulties in marketing fresh and frozen fish, however, because of inadequate refrigerated transport and storage facilities. In North America, fish production was maintained in 1947, although the Canadian supply was about 10 percent below 1946. United States and Alaskan catches equaled the 1935-38 average. Latin-American production has increased steadily during and since the war. In the Far East, efforts are being made to raise the low level of production: Most of the Japanese production in 1947 was retained for domestic consumption, and it is expected that the same conditions will obtain in 1948.



### FREEZING FISH AT SEA

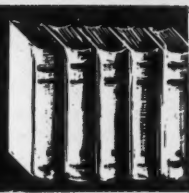
It is believed the refrigeration plant on the Pacific Explorer has a larger capacity than that installed on any vessel of United States registry. Although there are refrigerated ships having a far greater cubic capacity, they are designed for transporting meat or produce and few, if any, are expected to hold the cargo space at temperatures lower than 15° F. This vessel was designed to hold cargo at 0° F. or lower and has freezer space for stowing about 130 tons of tuna. It was believed, during design, that the refrigeration plant capacity was in excess of the needs, but this was not found to be true under tropical conditions.

—Fishery Leaflet 278





# FEDERAL ACTIONS



## Food and Drug Administration

**FINAL ORDER ON FILL OF CONTAINER FOR CANNED SHRIMP:** In the matter of amending the standard of fill of container for canned shrimp, the Food and Drug Administration issued a final order dated June 17, according to the Federal Register. This order was issued upon consideration of the exceptions filed to the tentative order issued on August 7, 1947, by the Federal Security Administration and its denial of the exceptions on the basis of the evidence received at the hearing held on June 6, 1947, which was the basis of the tentative order.

Full text of the order, as it appeared in the Federal Register of June 23, 1948, follows:

### FEDERAL SECURITY AGENCY

#### Food and Drug Administration

[21 CFR, Part 36]

[Docket No. WDC-48]

#### CANNED SHRIMP

#### PROPOSED STANDARD OF FILL OF CONTAINER

In the matter of amending the standard of fill of container for canned shrimp.

**Final order.** By virtue of the authority vested in the Federal Security Administrator by the provisions of the Federal Food, Drug, and Cosmetic Act (secs. 401, 701; 52 Stat. 1046, 1055; 21 U. S. C. 341, 371), and on the basis of the evidence received at the above-entitled hearing duly held pursuant to notice issued on June 6, 1947 (12 F. R. 3725); upon consideration of the exceptions filed to the tentative order issued by the Federal Security Administrator on August 7, 1947 (12 F. R. 5429) and denying them, save as otherwise may be seen by comparison of this order with the tentative order, the following order is hereby promulgated.

**Findings of fact.** 1. By order published in the FEDERAL REGISTER of July 2, 1942 (7 F. R. 4944), standards of fill of container were promulgated for canned wet-pack shrimp and canned dry-pack shrimp in nontransparent containers. The effective date of the order was August 1, 1942, and since that date nearly all of the canned shrimp in nontransparent containers produced in the United States has been packed in compliance with those standards of fill of container. (R. 10, 91, 100-101; Ex. 7)

2. The change from the lower fill which were used prior to the promulgation of these standards of fill of container made it necessary for canners to exercise more careful control at certain stages of the canning process. More care was necessary in packing the shrimp into the cans and additional precautions were necessary to prevent shrimp spilling from cans before sealing. The exercise of these additional precautions placed no unreasonable burden on the canners of shrimp. (R. 15-17, 33, 45, 56-57, 59, 61-62, 77, 100-101, 115-117, 119-120, 127, 131, 134-135)

3. The probability of an increase in breakage in the closure of cans during and after processing, as a result of compliance with the present requirements, was advanced at the hearing on July 8, 1947, as a reason for reducing the requirement as to fill. The causes of such difficulties are directly related to the structure of the cans used and to lack of proper control of canning operations, particularly the head space of the can and the temperature of its contents when it is closed. (R. 10-12, 29-30, 35-36, 39-40, 45, 61-62, 65-67, 77, 79-80, 120, 133-134, 141)

4. Canners of shrimp presented at this hearing certain reasons for objecting to the present requirements of fill of container in addition to increased manufacturing difficulties. These included an increased tendency for struvite crystals (referred to in exhibits 3 and 6 as phosphate crystals) to form when canned shrimp is held after canning, lowering of keeping quality caused by the longer time one season to another have been in of processing used with the present fill, a creased by the longer processing time

tendency for shrimp in some cans to stick together and to stick inside the cans, and an increase in the number of broken and twisted shrimp. (R. 12, 15, 43, 45, 51-52, 61-62, 74-75, 77, 96, 121-122; Exs. 3, 4, 6)

5. For many years it has been observed that small glass-like crystals of the compound struvite (magnesium ammonium phosphate) will develop in an occasional can of shrimp. This is objectionable, since uninformed consumers sometimes mistake the crystals for particles of glass. The cause of the formation of these crystals is not known. There was evidence of an increase in complaints from consumers because of the occurrence of struvite crystals in canned wet-pack shrimp since the promulgation of the present standards, but this evidence does not show the cause of the crystal formation or a relationship between the incidence of struvite crystals and the drained weight of shrimp. The number of complaints compared with the number of cans of shrimp packed is so small as to be statistically insignificant. (R. 12-14, 30-32, 37, 45, 52, 67-70, 74-75, 77, 80-81, 82-87, 102-106, 125-126, 139, 89; Exs. 3, 6, 9)

6. Apprehension was expressed that the longer processing time now used would render the shrimp somewhat softer when held for an extended period, unless they were held in cold storage. There is insufficient evidence to show that any increase in softening of shrimp packed under the present standard is of significance to consumers. Nor is the evidence sufficient to show whether the hazards of holding canned shrimp from one season to another have been in of processing used with the present fill, a creased by the longer processing time

<sup>1</sup>The citations following each finding of fact refer to the pages of the transcript of the testimony and the exhibits received in evidence at the hearing, which are the basis for these findings.



now employed. (R. 50-52, 55, 64-65, 73-74, 77-79, 100-101, 122-129, 135-136; Ex. 9)

7. Sometimes the shrimp in cans of wet-pack shrimp stick together or stick to the sides of the can and at times one or more shrimp is broken. This happened to a lesser extent when cans contained less shrimp. This characteristic is not an impairment of quality of any significance. (R. 15, 43-45, 77, 100-101, 107, 121-122, 124, 127; Ex. 9)

8. Sales of canned shrimp have been slow due to high prices. It is the opinion of many dealers that sales would be facilitated if canned shrimp were available in a smaller quantity than 7 ounces, the weight of shrimp in the No. 1 can wet pack, so that the price per can could be reduced. The No. 1 can was the smallest can permitted until recently under requirements of the wartime tin conservation order. During the last few months some canners have packed shrimp in smaller cans. There was evidence that certain of these smaller cans are not of a size well adapted to the packing of large and extra large shrimp. The

shrimp are too large for the can. However, there is no evidence indicating that there should be established a standard of fill of container for large and extra large shrimp different from the standard of fill of container for medium and small shrimp. (R. 17-25, 45, 49, 77, 93, 99-100, 104, 107, 116-117, 119-120, 131-133; Exs. 4, 8, 9)

**Conclusions.** On the basis of the foregoing findings of fact it is concluded that:

(a) Reducing the standard of fill of container for wet-pack shrimp would result in the replacement of shrimp with brine. The reduction of the standard of fill of container for dry-pack shrimp would result in omitting from the can shrimp that could be contained therein. In both instances the size of the cans would inaccurately reflect the amount of shrimp contained therein, particularly because consumers of canned shrimp have been receiving well-filled cans for about 5 years.

(b) It would not promote honesty and fair dealing in the interest of consumers to reduce the requirements of cut-out

weight in the standards of fill of container for canned wet-pack shrimp and canned dry-pack shrimp in nontransparent containers, be not amended to provide for reduction in the requirement for cut-out weight.

Dated: June 17, 1948.

OSCAR R. EWING,  
Administrator.

[P. R. Doc. 46-5585; Filed, June 22, 1948; 8:51 a. m.]

\* \* \* \* \*

**OYSTERS--STANDARDS OF IDENTITY AND FILL OF CONTAINER:** A West Coast oyster processing plant filed a petition with the United States Circuit Court of Appeals for a judicial review of the order issued by the Food and Drug Administration, Federal Security Administration, on March 10, 1948. The order in question promulgated regulations fixing and establishing a definition and standard of identity and amending the standard of fill of container for canned oysters. The Court, by an order dated June 8, 1948, referred it for hearing to the Federal Security Administrator. The Food and Drug Administration, according to the Federal Register, in compliance with the direction of the Court, gives notice of a public hearing.

Full text of the order, as it appeared in the Federal Register of June 23, 1948, follows:

**127 CFR, Part 381**

[Docket No. FDC 50]

**FILL OF CONTAINER FOR CANNED OYSTERS;  
DEFINITIONS AND STANDARDS OF IDENTITY  
AND STANDARDS**

**NOTICE OF HEARING**

Whereas, the Federal Security Administrator, by an order in this proceeding dated March 10, 1948, and published in the Federal Register of March 13, 1948, promulgated regulations, fixing and establishing a definition and standard of identity and amending the standard of fill of container for canned oysters; and

Whereas, Willapoint Oysters, Inc., filed its petition with the United States Circuit Court of Appeals for the Ninth Circuit for a judicial review of said

order praying, however, that the proceeding be remanded to the Federal Security Administrator with directions that additional evidence be taken as to the petitioner's alleged new method of preparing oysters for canning by blanching fresh shucked oysters and as to the proper standard of fill of container under the Federal Food, Drug, and Cosmetic Act for oysters canned after such preparation; and

Whereas, the said Court, by order dated June 8, 1948, remanded for proceeding to the Federal Security Administrator.

... with direction to take such additional evidence (and evidence in rebuttal thereof) as may be offered relative to said process of packing blanched oysters, within a period of 30 days from the date of this order on such reasonable notice to the petitioner as he may give.

Now, therefore, in compliance with the direction of said Court, the Federal Security

Administrator gives notice hereby that a public hearing will be held commencing at 10:00 a. m. eastern daylight time, July 7, 1948, in Room 5540, Federal Security Building, Independence Avenue and Fourth Street SW., Washington, D. C., to receive such evidence as may be adduced by Willapoint Oysters, Inc., as to its alleged new method of preparing oysters for canning and as to the relationship of such method to a reasonable standard of fill of container, as contemplated by the Federal Food, Drug, and Cosmetic Act, for canned oysters. Rebuttal evidence may be adduced by any interested party. A copy of this notice shall be mailed forthwith to Willapoint Oysters, Inc.

Dated: June 17, 1948.

[SEAL]

OSCAR R. EWING,  
Administrator.

[P. R. Doc. 46-5586; Filed, June 22, 1948; 8:45 a. m.]

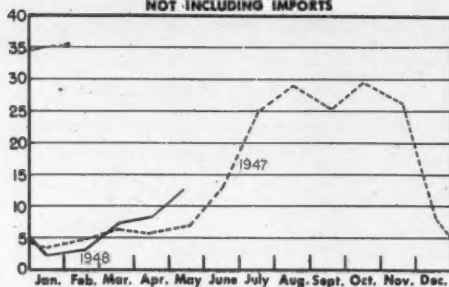
<sup>1</sup> 13 F. R. 1337-1339.



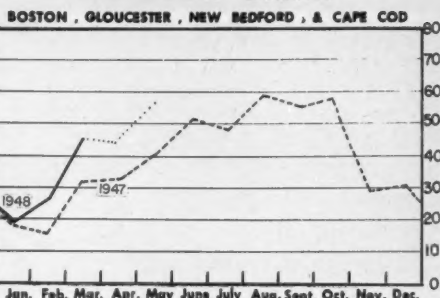
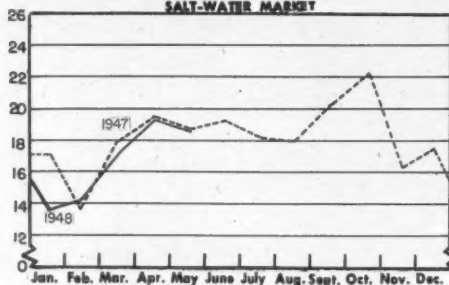
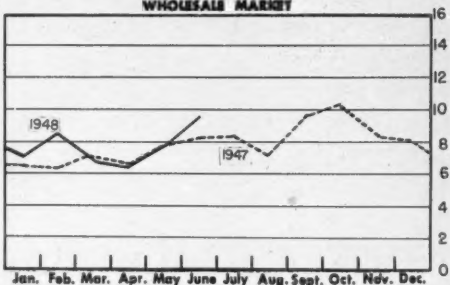
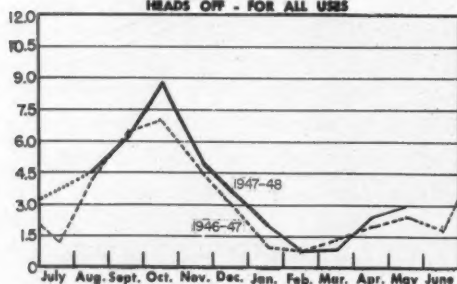
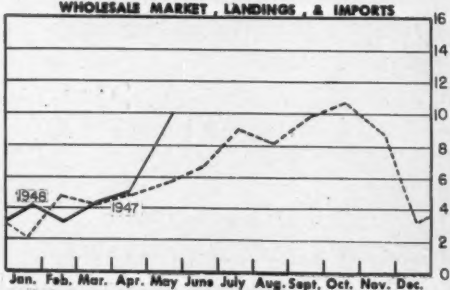


## LANDINGS AND RECEIPTS

In Millions of Pounds

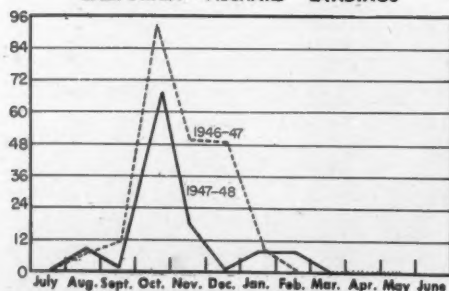
MAINE - LANDINGS  
NOT INCLUDING IMPORTS

MASSACHUSETTS - LANDINGS

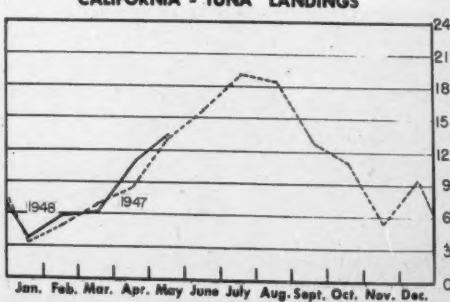
NEW YORK CITY - RECEIPTS OF FRESH & FROZEN FISH  
SALT-WATER MARKETCHICAGO - RECEIPTS OF FRESH & FROZEN FISH  
WHOLESALE MARKETGULF - SHRIMP LANDINGS  
HEADS OFF - FOR ALL USESSEATTLE - RECEIPTS OF FRESH & FROZEN FISH  
WHOLESALE MARKET, LANDINGS, & IMPORTS

In Thousands of Tons

CALIFORNIA - PILCHARD LANDINGS



CALIFORNIA - TUNA LANDINGS



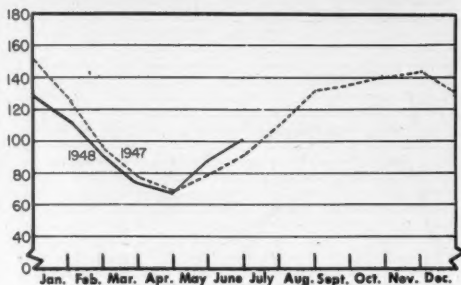
..... ESTIMATED



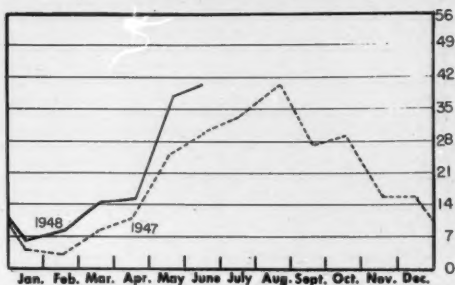
# COLD STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS

In Millions of Pounds

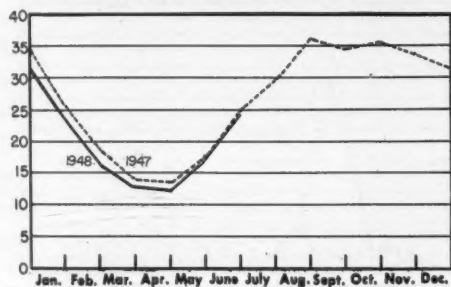
U.S. &amp; ALASKA - HOLDINGS OF FROZEN FISH



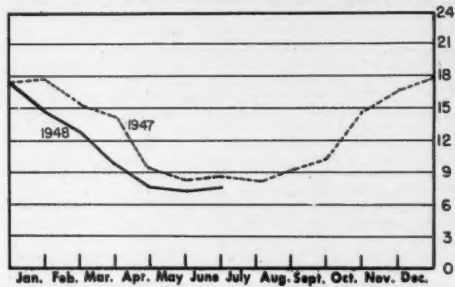
U.S. &amp; ALASKA - FREEZINGS



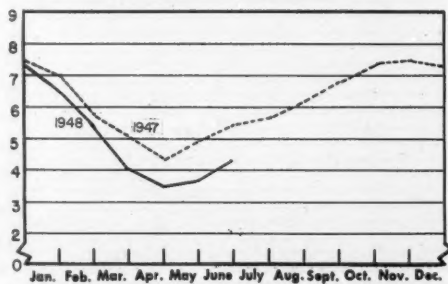
NEW ENGLAND - HOLDINGS OF FROZEN FISH



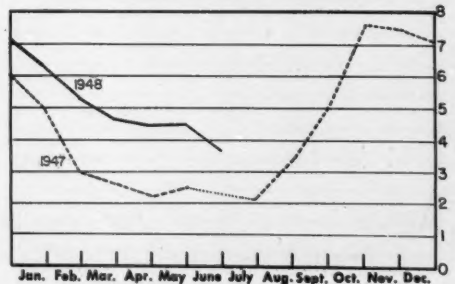
NEW YORK CITY - HOLDINGS OF FROZEN FISH



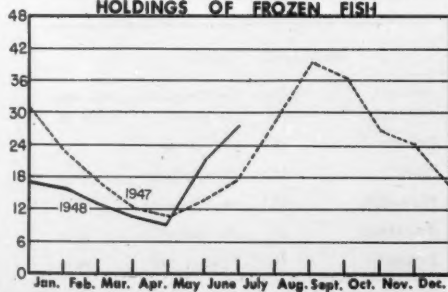
CHICAGO - HOLDINGS OF FROZEN FISH



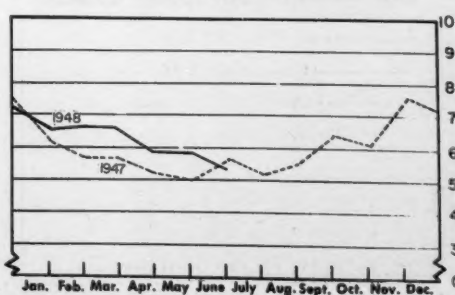
GULF - HOLDINGS OF FROZEN FISH



WASHINGTON, OREGON, AND ALASKA - HOLDINGS OF FROZEN FISH



CALIFORNIA - HOLDINGS OF FROZEN FISH

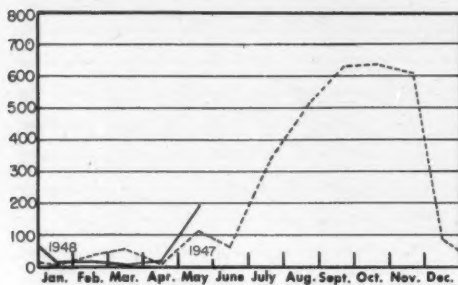
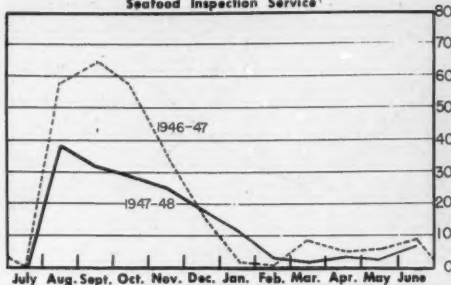




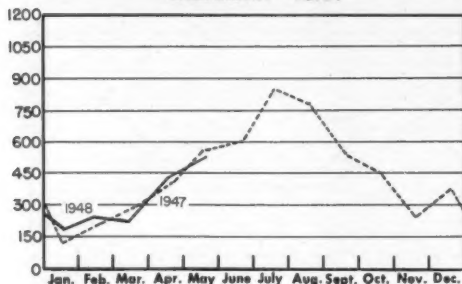
## CANNED FISHERY PRODUCTS

In Thousands of Standard Cases

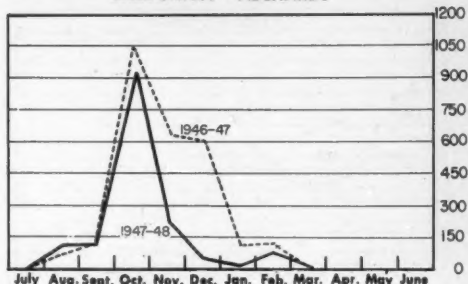
MAINE - SARDINES, ESTIMATED PACK

UNITED STATES - SHRIMP  
Plants under Food and Drug Administration  
Seafood Inspection Service

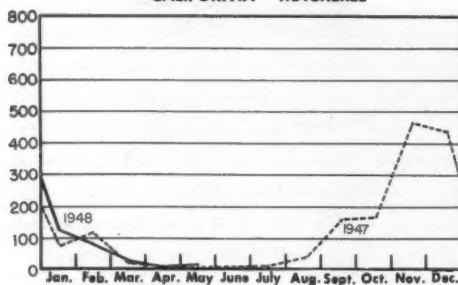
CALIFORNIA - TUNA



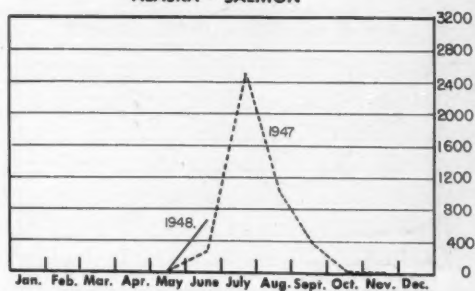
CALIFORNIA - PILCHARDS



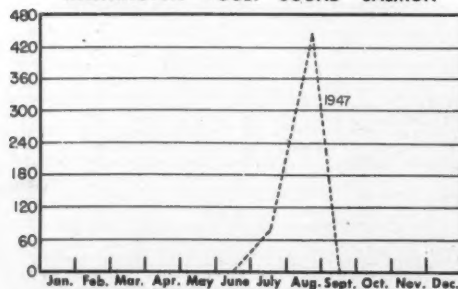
CALIFORNIA - MACKEREL



ALASKA - SALMON



WASHINGTON - PUGET SOUND SALMON



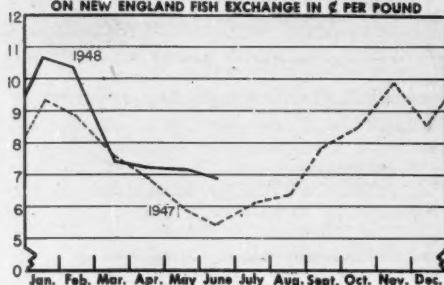
## STANDARD CASES

Variety	No. Cans	Can Designation	Net. Wgt.
SARDINES	100	1/4 drawn	3 1/4 oz.
SHRIMP	48	No. 1 picnic	7 oz.
TUNA	48	No. 1/2 tuna	7 oz.
PILCHARDS	48	No. 1 oval	15 oz.
MACKEREL	48	No. 300	15 oz.
SALMON	48	1-pound tall	16 oz.

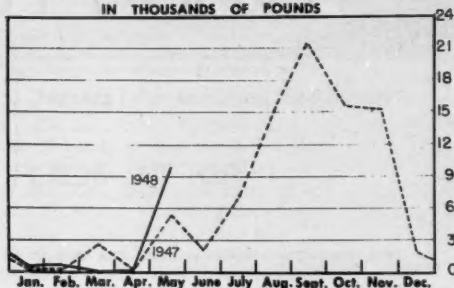


## PRICES, IMPORTS and BY-PRODUCTS

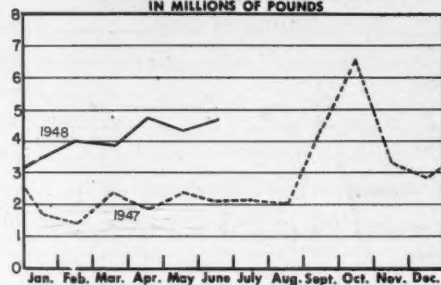
**BOSTON - WEIGHTED AVERAGE PRICE  
ON NEW ENGLAND FISH EXCHANGE IN ¢ PER POUND**



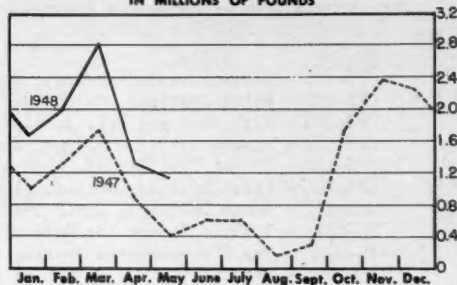
**MAINE - IMPORTS OF SEA HERRING  
IN THOUSANDS OF POUNDS**



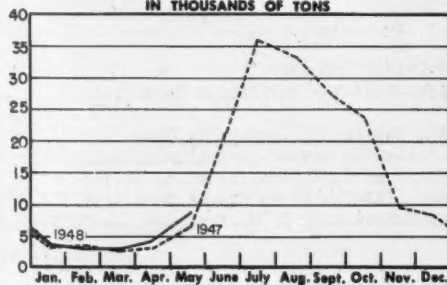
**U.S. - IMPORTS OF FRESH & FROZEN FILLETS  
OF GROUND FISH, INCLUDING ROSEFISH,  
IN MILLIONS OF POUNDS**



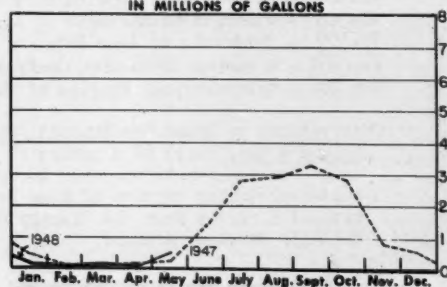
**U.S. - IMPORTS OF SHRIMP FROM MEXICO  
IN MILLIONS OF POUNDS**



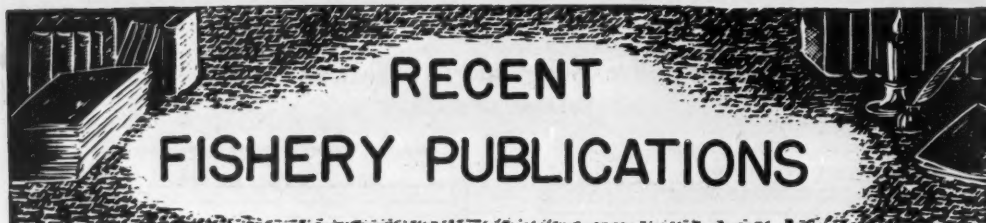
**U.S. & ALASKA - PRODUCTION OF FISH MEAL  
IN THOUSANDS OF TONS**



**U.S. & ALASKA - PRODUCTION OF FISH OIL  
IN MILLIONS OF GALLONS**







# RECENT FISHERY PUBLICATIONS

Recent publications of interest to the commercial fishing industry are listed below.

## FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES AND ALASKA.  
FL - FISHERY LEAFLETS.  
NDL - MARKET DEVELOPMENT SECTION LISTS OF DEALERS, LOCKER PLANTS, ASSOCIATIONS, ETC.  
SL - STATISTICAL SECTION LISTS OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.  
REP. - SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.

Number	Title
CFS-406	- Massachusetts Landings, December 1947
CFS-407	- Maine Landings, March 1948
CFS-408	- Fish Meal and Oil, April 1948
CFS-409	- Massachusetts Landings, January 1948
CFS-410	- Frozen Fish Report, June 1948
CFS-411	- Massachusetts Landings, 1947 Annual Summary
CFS-412	- Maine Landings, April 1948
FL-242	- A Rapid Method for Determining the Vitamin A Potency of Fish Livers
FL-270	- The Electrostatic Smoking of Sardines
FL-287	- Per Capita Consumption of Fish only 13.3 lbs. (1935)
FL-301	- Suggestions for Operators of Tuna Receiving Ships
FL-302	- Kite Rigs for Otter Trawl Gear
FL-305	- Guano Islands--Union of South Africa
FL-306	- Strength Measurement of Agar Gels
FL-307	- Syneresis of Agar Gels
Sep. 205	- A Serious Situation Confronting the Oyster Industry
Sep. 206	- Technological Studies of the Starfish--Part V--Starfish as Fertilizer

Observations on Gonad Development, Spawning and Setting of Oysters in Long Island Sound. First of a series of special bulletins issued periodically each oyster season for information of oyster growers on conditions existing in the oyster-producing section of Long Island Sound. Available as issued free upon request directly from the Fishery Biological Laboratory, U. S. Fish and Wildlife Service, Milford, Conn.

Fluctuations in the Abundance of the Blue Crab in Chesapeake Bay, Research Report 14, by John C. Pearson, 26 p., 1948, Printed. Shows that an analysis of the catch per unit of fishing effort of blue crabs (*Callinectes sapidus*) in Chesapeake Bay indicates that annual fluctuations in commercial abundance are primarily associated with variable rates of survival of crabs in their first year of life. For sale by Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., 10 cents.



## ARTICLES BY FISH AND WILDLIFE SERVICE AUTHORS IN OTHER PUBLICATIONS

"Uses of Fur Seal Carcasses by Natives of the Pribilof Islands, Alaska," by Victor B. Scheffer. Northwest Quarterly Proceedings, Vol. 39, No. 2, April 1948, p. 131-132. (Not available from Fish and Wildlife Service).

## MISCELLANEOUS PUBLICATIONS

THE FOLLOWING PUBLICATIONS MAY BE OBTAINED, IN MOST INSTANCES, FROM THE AGENCIES ISSUING THEM.

Propagation of Minnows and Other Bait Species, Circular 12, by J. R. Dobie, O. L. Meehan, and G. N. Washburn, 113 p., illus., 1948, Processed. Intended as a guide for persons interested in raising minnows and other bait species as a commercial venture. Is a summary of information assembled to date on bait culture and has resulted from work done by a special committee of representatives of the Fish and Wildlife Service and the State Conservation Departments of Wisconsin, Minnesota, and Michigan. Copies may be obtained from the Michigan Conservation Commission, Lansing, Mich., and the Minnesota Department of Conservation, St. Paul, Minn. For sale also by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., 35 cents.

Fish Ponds for the Farm, by Frank C. Edminster, 114 and xii pages, illus., photographs, line drawings, charts, and graphs, Printed. Charles Scribner's Sons, New York, 1947. Price \$3.50.

United States Import Duties (1948) - Schedules of Articles Subject to Duty and of Articles Free of Duty as of June 15, 1948, Miscellaneous Series, 419 p., Processed and Printed. U. S. Tariff Commission and Bureau of Customs, Treasury Department. This lists fish and fishery products among other items. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., \$2.00.



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Processing -- Miscellaneous Service Division

Illustrator -- Gustaf T. Sundstrom

Compositors -- Margaret C. Harris and Norma D. Loeffel

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## MOTION PICTURE--BASIC NET MENDING

A new 16mm sound, color, motion picture, entitled "Basic Net Mending," now being produced by the U.S. Fish and Wildlife Service under its educational program, demonstrates the basic principles involved in repairing damaged fishing nets.



The instructional 15-minute film depicts the following procedures in net mending:

1. Supporting the net.
2. Trimming the hole.
3. Using the proper tools.
4. "Filling" the needle.
5. Mending the hole.

In addition, the picture, to effectively bring out the details in net mending, uses certain specially developed animation devices.

The shooting of the film's indoor sequences took place in a New York City film studio with the outdoor sequences being taken at the New Bedford wharves and on the fishing vessel, "Lera G," operating out of the same port.

Prints of the film are expected to be available for showings in the early fall. At that time, an announcement will be made indicating the methods by which prints can be obtained from the Service.

128D Michigan.

Ann Arbor,

University of Michigan General Library,

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